Official Journal of THE CANADIAN SOCIETY OF COST ACCOUNTANTS
(INCORPORATED 1920)

COST *and* MANAGEMENT

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First Convention Number

The Canadian Society of Cost Accountants

INCORPORATED 1920

The objects of the Canadian Society of Cost Accountants may be summarized as follows:—

1. To promote the study and application of the SCIENCE OF COST ACCOUNTING.
2. To develop and foster in Commerce and Industry a wider knowledge of Cost Accounting Methods and Principles.
3. To provide an organization by means of which the members thereof may be enabled to increase their proficiency in all matters relating to Cost Accounting and other branches of Commercial and Industrial Administration and Management.
4. To render available to its membership the best literature on subjects connected with Costs and Administration.
5. To afford a medium for the Solution of Problems interesting to its Membership and for the development of Cost Accounting as a Science.
6. To offer by means of open meetings a Forum for the discussion of problems and the interchange of views.

Membership is not restricted to any one class or profession, but includes Executives, Accountants, Factory and Plant Managers, Industrial Engineers and others to whom the activities and scope of the Society have a direct appeal.
The fee for membership in the Society is Twenty Dollars per year, payable in advance on the first day of March of each year or, at the option of the member, in two half-yearly instalments of equal amount, payable respectively on the first day of March and the first day of September of each year.

The Canadian Society of Cost Accountants

INCORPORATED 1920

APPLICATION FOR MEMBERSHIP

Name in full.....

Address in full.....

Firm with whom engaged.....

Firm's address in full.....

Firm's Business.....

Position held..... Age.....

Names and addresses of two references:

.....

.....

(If applicant is a Member of any Accounting Institute or Society incorporated under the authority of any Provisional Legislature, it will be sufficient to give the name and address of the Secretary of such Institute or Society.)

To R. S. Smith, Hon. Secy., 77 Commissioner Street, Toronto.

I hereby apply to be admitted a Member of The Canadian Society of Cost Accountants and undertake if admitted to observe all the By-laws and Regulations of the Society for the time being in force.

I enclose herewith ..... Dollars, being my Membership fee to the end of the current half year, which is to be returned to me if this application is not accepted. year

SIGNATURE OF APPLICANT.....

DATE.....

The Canadian Society of Cost Accountants

INCORPORATED 1920

Hamilton Chapter

Executive 1926-1927

Chairman
W. G. Donaldson, 69 Balsam Avenue South, Hamilton.

Vice-Chairman
N. M. Bassin, B.Sc., A.M.C.I.E., 116 Charlton Avenue West, Hamilton.

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A. E. Keen, C.A., Thorne, Mulholland, Howson & McPherson, Hamilton.

R. E. Love, Office Manager, The Hoover Company, Limited.

S. G. Richardson, C.A., Richardson, Smith, Ferrie & Co.

H. R. Talman, Cost Accountant, Canadian Canners, Limited.

C. S. Watson, Riddell, Stead, Graham & Hutchison.

PROGRAMME, 1926-1927

1926

Oct. 14 J. P. Bell, Manager-in-Chief, Canadian Bank of Commerce, Hamilton—
(Subject not yet named)

Nov. 4 A. B. Green, Director of Production, Dominion Envelope & Cartons, Limited, Toronto—
"The Place of the Cost Accountant in Industry."

Nov. 25 John Craig, President of The Canadian Society of Cost Accountants, Toronto—
"Modern Cost Accounting."

Dec.16 A. E. Keen, C.A., Thorne, Mulholland, Howson & McPherson, Hamilton—
"Wage Incentives."

1927

Jan. 6 R. L. Wright, M.A., Vice-President of The Wahl Company, Limited, Toronto—
"Business Cycles and Industrial Forecasting."

1927

Jan. 27 A. P. Kappele, Purchasing Agent for the City of Hamilton—
"Cost Accounting in its Relationship to Municipal Administration."

Feb. 17 C. S. Walters, Inspector of Taxation, Hamilton—
(No subject named)

Mar. 10 James Turner, C.A., The T. Eaton Co., Limited, Toronto—
"Selling and Administration Costs and Their Distribution."

Mar. 31 H. T. Jamieson, F.C.A., Riddell, Stead, Graham & Hutchison, Toronto—
"Some Practical Advantages of Co-operation in Industry."

Apr. 21 S. E. LeBrocq, Assistant Comptroller, The Steel Company of Canada, Limited, Hamilton—
"Balance Sheet, Manufacturing and Profit and Loss Accounts."

Officers of the Montreal Chapter

Chairman

Lorenzo Belanger, L.A., C.G.A., 133 Crescent St.

Vice-Chairman

Col. R. R. Thompson, C.A., McGill University.

Treasurer

C. E. Whitten, Canadian Paperboard Co., Limited.

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Frank Fernie, A. R. Whittall Can Company, Limited.

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D. M. Farish, C.A., Northern Electric Co., Limited.

R. R. Johnson, Henry Birks & Sons, Limited.

G. C. Leroux, Income Tax Department.

L. A. Peto, Canadian Car & Foundry Co., Limited.

F. C. McElroy, Consolidated Lithographing & Mfg. Co., Ltd.

OUTLINE OF PROGRAMME FOR WINTER SESSION 1926-27

MEETING DATE	SUBJECTS
Oct. 1st, 1926	Government Budgets.
Oct. 15th, 1926	Financing Water Power
Oct. 29th, 1926	Modern Cost Methods
Nov. 12th, 1926	Bank and Trust Costs
Nov. 26th, 1926	Transportation
Dec. 10th, 1926	Application of Accounting. Principles to Cost
Jan. 28th, 1927	Power Construction Costs
Feb. 11th, 1927	Litho Job Costs—In use
Feb. 25th, 1927	Stores Control—In use
Mar. 11th, 1927	Direct Labor Application—In use
Mar. 25th, 1927	General Ledger Control of Factory Accounts—In use
Apr. 6th, 1927	Factory Ledger Control Accounts, —*In use*
	Application of Depreciation and Maintenance—*In use.*

Full programme will appear in our next issue. The opening speaker on October 1st will be Mr. Oliver Wellington, C.P.A., of Scovell, Wellington & Co., Boston, U.S.A., and among other speakers there will be A. J. Nesbit, John Craig, G. C. Leroux, Col. R. R. Thompson, C.A., O. Lefevre.

The Canadian Society of Cost Accountants
Officers of the Toronto Chapter

Chairman—T. S. Jardine,
United Drug Company, 68 Broadview Ave.,
Toronto 8.

Vice-Chairman—James Turner,
The T. Eaton Co. Ltd.

Treasurer—G. H. Houston,
Rolph, Clark, Stone, Ltd., 201 Carlaw Ave.,
Toronto 8.

Secretary—R. A. Burdett,
Robert Simpson Co., Ltd., 108 Mutual St.,
Toronto 2.

EXECUTIVE:

C. H. Black,
Dunlop Tire & Rubber Co., Ltd.

J. E. Carruthers,
Durant Motors of Canada, Ltd.

John Craig,
John Craig & Company.

H. E. Guilfoyle,
Clarkson, Gordon & Dilworth.

A. E. Nash,
Clarkson, Gordon & Dilworth.

The opening meeting of the Toronto Chapter will take the form of a luncheon on the 13th October with Mr. George H. Ross, city treasurer, the speaker, his subject being "Principles Underlying City Estimates and Budgets." Further particulars will be sent to the members of the Chapter by post. The remaining items of the programme will appear in our next issue.

Chapter Notes

HAMILTON CHAPTER NOTES

THE Chapter will commence its 1926-1927 season by holding a dinner at the Royal Connaught Hotel on Thursday, October 7th, at 6.30 o'clock p.m. The chief speakers are our old friends, Messrs. John Craig, R. L. Wright and A. C. Skelton. Leading executives in business, bankers and financial men have been invited and it is expected that many will accept. Members of the Toronto Chapter have also been invited and no doubt a good number will be present.

The Chapter now has a membership of 44 senior and junior members and it is the intention of the Executive to spare no efforts to still increase the membership.

The Executive believes that it is important for the success of the Hamilton Chapter that men, prominent as executives in business, bankers and financial men should be acquainted with the objects and work of the Society, as the membership of the Chapter is largely made up of Accountants, Cost Accountants, Factory Managers, Departmental Works Managers, Industrial Engineers, etc., who are generally members through the consent of their employers, and without the interest of their employers the Chapter cannot be expected to grow.

The Chapter also ardently desires to secure as members executives themselves, as well as interested employees, because it is certain that only executives possess that very wide knowledge of business, which must be imparted to those engaged in Industrial Costing, if the efforts of the latter are to be successful.

THE members of Hamilton Chapter who were fortunate enough to attend the Convention in Hart House were well pleased with the arrangements and the way the Convention was carried out.

We were particularly impressed with the calibre of the speakers, and we appreciate the efforts of our president, Mr. John Craig, and the committee in charge in making this our first Convention such an outstanding success.

We are looking forward to a very successful year for the Canadian Society of Cost Accountants and have bright prospects of increasing the membership in Hamilton Chapter and hope sometime to have our Convention in Hamilton. W. G. D.

MONTREAL CHAPTER NOTES

The Executive held but two meetings this summer, July 7th and September 17th, but nevertheless both were well attended and much business accomplished.

On July 20th the Chapter was invited to inspect the plant of the Quebec Liquor Commission. While the numerical attendance was not entirely satisfactory, it was well representative. The chairman of the Board received the party and Messrs. R. Kane and J. Dever explained in detail most satisfactorily the operations of this (Public Utility, I was going to say) immense enterprise. Chapter Chairman Belanger was quite satisfied with the "Degustation" and the Secretary more so.

We look forward to an exceptional programme for the coming session, and anticipate larger attendance than in the past.

Due to an increase in rent demanded by the Engineering Institute, the Executive are endeavoring to locate a suitable hall in the same locality. We hope it will be a successful hunt.

TORONTO CHAPTER NOTES

TORONTO Chapter is growing. Applications are coming in steadily and it looks now as if our objective—50 new members by January First—will be reached.

The Convention in Hart House reached many firms both in Toronto and outside who had not previously been interested. A number of former members are coming back now that The Canadian Society is on its own feet. Every day enquiries are coming in, nearly all commenting on this and approving it.

After three years' intensive work on cost subjects only, this year's program is being worked out on broader lines to interest more of our members and to keep pace with the greatly increased scope of Cost Accounting. The field is widening every day.

The most outstanding feature of the Convention was the spirit of warm friendliness shown by everyone there. That is the spirit we want in our Chapter meetings and year by year it is growing. It helps our younger members to forget self consciousness when they feel they are among friends who will not criticise. We would like every member of the Chapter to make up his mind to attend at least some of the meetings and to take part in the discussions. It is the one best way to learn "to talk on your feet" and that we must be able to do if we are to measure up to the opportunities of the future. That is one difference between the Cost Clerk and the Cost Accountant.

COST AND MANAGEMENT

OFFICIAL JOURNAL OF

THE CANADIAN SOCIETY OF COST ACCOUNTANTS

Incorporated 1920

Head Office: 95 King Street East, Toronto.

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Vol. 1 SEPTEMBER, 1926 No. 1

THE CONVENTION

THE First Annual Convention of the Canadian Society of Cost Accountants has come and gone; but *it is not over.* We are reminded of the story of the young fellow, who meeting an old lady coming out of church, asked flippantly: "Well, mother, is the sermon done?" "No," she replied — "it is preached; it has to be done." The same with our First Convention. For all who were present it was an inspiring time. Good papers and speeches from the first to the last, and not a dull moment. Every one present felt that it would be a shame to let so much good material pass and be forgotten. Fortunately the Convention Committee had made arrangement for a verbatim report of the proceedings. The papers and addresses of the first day appear in this number, while the second day's proceedings will be reported in our next issue.

It was thought well to lay aside much interesting matter, already in type, to make room for our Convention reports, and we believe that this will be approved by our members at large and by others who took part in the sessions at Hart House.

THE success of the First Convention of the Canadian Society of Cost Accountants has suggested to some of our members that the Convention should be made a permanent fixture in Toronto. This, it seems, does not suit our friends in Montreal who are already on the war path. They insist that the next convention must be held in Montreal, and point to certain advantages in the way of entertainment which that city can offer. These, however, are merely incidental. When they tell us, however, that they are already beginning to make their preparations for that event we must sit up and think. We have no doubt that if it is decided to hold our next Convention in Montreal great impetus will be given to the work of our Montreal Chapter. It will be a powerful stimulus to its membership campaign and will do much to promote cost accounting in the province of Quebec.

WE attribute a large measure of the success of our First Convention to our programme speakers. It would be difficult to find more attractive speakers than those who lent us their co-operation and our thanks are particularly due to Mr. C. E. Knoeppel, of Boston, Mr. Wm. B. Castenholz, of Chicago, and Mr. E. T. Elbourne, of London, England. By the way we rather dislike having to write "London, England." We recollect an incident which is said to have occurred in Hamilton during the hectic days of recruiting in 1914. An Englishman lined up for examination. The recruiting officer having got his name asked his birth place, to which he got the answer "Lunnon." Remarking the man's Cockney accent and resolving to have a little joke at his expense, the officer remarked, "Oh, London, Ontario," drawing the disdainful reply: "Naow Sir, Lunnon, the 'arf of the 'ole earth"—well, that is the small village from which Mr. Elbourne hails.

HUMANITARIAN IDEAS

ONE feature which was very prominent during both days of the Convention was the very strong humanitarian trend which illuminated both papers and discussions. At few Conferences or Conventions has the acknowledgment of the workers' rights to fair treatment been so emphatic. Cost Accountants as a rule are far ahead of the average executive, not perhaps in desiring to give the worker "a square deal" but in recognizing that one of the best ways to reduce cost is to treat the workers in every grade as partners in the work and thus secure their co-operation.

"OUR MAGAZINE"

OWING to the fact that the first issue of this magazine has been held back so as to include in its opening number some reports of the Convention proceedings, some of our articles, already in type, are reserved for our next or succeeding issues.

It is the intention of the Board of the Canadian Society of Cost Accountants to make this, its official organ, a publication of value and usefulness to all interested in the science of Cost Accounting. While drawing our matter primarily from our own Chap-

ter papers and from articles specially prepared for "Cost and Management," we shall also seek to make this journal a digest of all that is worth while in current cost literature.

Month by month articles appear in many publications which would be of interest to our members and subscribers, but which it is impossible for them to obtain. We propose to select the most valuable of these and to reprint them in our paper. Several very important societies have already intimated their willingness to place their articles at our disposal, and we gladly accord them reciprocal privileges. We believe that by this interchange we shall benefit all round and do much to disseminate useful information regarding Cost, Administration Management and other kindred subjects.

We take this opportunity of acknowledging our obligations to the Institute of Cost and Works Accountants, London, England; the Institute of Administration, London, England, and the Industrial Institute, London, England, also to the Society of Industrial Engineers, Chicago, from all of whom we have had promises of co-operation. Some of their papers will appear in our columns.

BOOK REVIEWS

WE hope to make Book Reviews one of the outstanding features of the magazine. For this month, however, Convention reports have absorbed our space.

We understand that the Year Book of the N.A.C.A. containing the reports of the Sixth Annual Conference of the National Association of Cost Accountants held at Atlantic City last June is now in the hands of their Editorial Committee. We hope to devote some space to it either in our November or December issue. It is usually a very interesting production.

REGISTRATION

THE registration of members and visitors to the Convention was handled by the Canadian Office Appliance and Supply Co., and their staff supplied assistance in making the Convention a success. This concern is well known to most Canadian Cost Accountants as specialists in modern time and labor saving devices and systems.

"OUR EXHIBITORS"

OUR acknowledgments are due to those firms who provided so interesting an array of exhibits. This was distinctly one of the Convention features.

The following firms contributed to make this part of our programme noteworthy:

Addressograph Sales Company.
Copeland-Chatterson Limited.
Dictaphone Sales Corporation, Ltd.
Elliot-Fisher, Limited.
Kardex Visible Record Systems.
Multigraph Sales Company, Ltd.
National Cash Register Co. of Canada, Ltd.
Office Specialty Manufacturing Co., Ltd.
Remington Typewriter Co. of Canada, Ltd.
Roneo Co. of Canada, Ltd.
Scannel Office Machine Co., Ltd.
Wahl Co., Ltd.

We devote a special article to the exhibits.

RESEARCH

Among the various projects likely to engage the attention of the Board of the Canadian Society of Cost Accountants is the installation of a RESEARCH DEPARTMENT. This will be under the direction of Mr. J. E. Carruthers and should be of great benefit to our members. Further particulars will be noted from time to time.

SERVICE TO COST MEN AND TO EXECUTIVES

Attention is called to the facilities offered by Cost and Management for bringing together those industrial firms seeking the services of qualified Cost Accountants and men who are available. Much would no doubt be done in the development of cost systems if executives could get in touch with men of experience and training capable of taking charge of this important department, and this magazine will be glad to offer the necessary introduction.

The Safe Cabinet Co. of Canada showed, after dinner on Friday evening, a series of moving pictures, illustrating their laboratory work and how they test record containers to ascertain their resistance to fire and drop hazards. This exhibition excited much interest.

There are many economies which are only rendered possible by standardizing lines. What is your definition of a "Leading Line?" Is it a line of which you sell a large quantity at or under Cost? Or is it a line of which you sell a fair quantity at a fair profit?

Mass production does *not* mean doing small quantities of a mass of different items. Mass production is doing a mass of one or of a few articles. In his car factory how many articles does Henry Ford make outside of cars?

The First Annual Convention of The Canadian Society of Cost Accountants

Held at Hart House, University of Toronto, on Thursday and Friday, 9th and 10th September, 1926

MORNING SESSION.

At 10.30 a.m., the President, John Craig, called the Convention to order and asked Sir Hugh Poynter, Bart., an old friend of the Society, who had frequently given the Society words of encouragement, to open the Convention.

ADDRESS—SIR HUGH POYNTER

MR. PRESIDNT AND GENTLEMEN,

I feel it a great privilege to have been invited to give the opening address at the first convention of Cost Accountants. I have always taken a great interest in your Society and have watched with much interest its growth and development under the able leadership of your Presidents, past and present, a development which has been made possible by the keenness and interest the members of the Society have shown in the work.

No subject is of greater interest to the Industrial world than Cost. An accurate knowledge of Cost is at the root of busines successs in these days of strenuous competition.

In former days many manufacturers could afford to guess at Cost and most of them did so, but in these times when the margin of profit is diminishing year by year a knowledge of cost much closer than was permissible formerly is now essential.

Too little attention has been paid to the idea of Cost. Industrials have assumed, perhaps too readily, that they must manufacture to keep their plants going and must sell at the best price obtainable to get rid of their production and that the market ruled prices and not Costs. While this may be done to some extent a manufacturer is much stronger if he knows on which of his lines he is making a profit and on which articles he is making no profit or perhaps a loss. With this knowledge he can guide his business intelligently, can press the sale of those articles of his manufacture which yield the best results and can hold back on those where he can see nothing but a loss.

Sometimes it is necessary to sell at, or even below Cost. This may arise from the necessity of meeting strenuous competition arising possibly from the most dangerous of all competitors, the competitor who does not know his Cost. It may be occasioned by the desire to keep his plant open and his trained staff from being dispersed. It may be a care of holding on for better times. But whatever the cause may be the manufacturer should know what this policy is costing him and how long he can stand it.

He owes this not only to himself but to others. It is a grave question how far a man is entitled to risk, not only his own, and perhaps his family's money, but also the money of his shareholders and creditors and the continuity of work for his employees without an adequate knowledge of what his articles of manufacture are costing him. Can he go on blindly trusting to luck or a change to better times to see him through?

Cost accounting has saved many a firm from bankruptcy and the absence of it may explain many failures. The same may indeed be said of nations who do not keep a proper control of costs.

Anything, therefore, that your Society can do to stimulate the interest in reaching a more accurate knowledge of cost among your own members is

of the greatest advantage, while to stimulate the interest of the Industrial Community at large is of the highest importance.

I understand that for some years your Society has been closely allied with a large American Society, The National Association of Cost Accountants, but that now it has been decided that the two Societies, one in the United States and yours in Canada, should amicably part company.

I certainly congratulate you on this step. It is a forward movement. However much the general principles of Cost Accounting may be universal yet the application is frequently governed by local conditions.

The Canadian Industrial has his own problems to face. Sometimes the same as those of his American brother, but often different, and requiring a different approach and a different treatment. Even where the problems are similar Canadian conditions differ so greatly from those in the nation to the south of us that special methods are required.

If the Canadian Society of Cost Accountants is to prosper it can only do so by rendering service and that service must be such as the Canadian Manufacturers require.

I think we are apt in matters of business management and business administration to imitate our neighbours too closely. Only within the last few years has their interest in Cost Accounting been awakened, and while it has been well developed it must not be forgotten that Cost Accounting did not originate in the States but in England, that the father of cost accounting was the English Accountant, Hawkins, whose work published in 1854 or 1855 really gave rise to what is now known as Cost Accounting. In England and in the States the subsequent development has been along lines sometimes similar and sometimes different. The ideas and theories of the English Cost Accountant are not always identical with those of the American. There are divergencies both of principle and method and it may be that a closer study of English ideas which you are now free to make may result in your building up a Canadian System of Cost Accounting, which will take both from England and America the best ideas of each. If you can do this you may work out a system even more suitable for the Canadian Manufactures and better adapted to Canadian requirements than any you have hitherto employed.

If you can develop the Canadian Society of Cost Accountants on free and indepedent lines, seeking to render the best possible service to the Canadian Industrial Community you will not only justify your own existence but have your share in the future extension of Canadian business and in Canadian prosperity.

Again I wish to say how much I appreciate being with you and will conclude by wishing you every success and hoping that you will always go forward and prosper.

President's Address

SIR HUGH POYNTER AND GENTLEMEN,

At the opening of this Convention it is perhaps fitting that I should supplement the remarks made by Sir Hugh Poynter and give the members here some information as to the standing of this Society in connection with its relations to the National Association of Cost Accountants.

For some years the two Societies have been very closely affiliated. An arrangement was made in the beginning of 1922 by which the two societies worked in close relations. Under the terms of that agreement we paid over to them 75 per cent. of our fees, and received in return all the literature that they issued to their members, in addition to which we had other privileges, such as the use of their library and research department, although this was nominal rather than actual because owing to our distance from headquarters very few of our members were able to take advantage of the different facilities that the National Association were quite willing to give us. Another feature was that we should mark on all paper that we were affiliated with them, while they should mark on theirs that they were affiliated with the Canadian Society, and that neither Society should encroach upon the other Society's territory.

This arrangement, which had many great advantages, had also some disadvantages, and was not working with entire satisfaction to either Society. We felt that the contribution that we were making to the National Association was too heavy a burden on our Society. We gave them 75 per cent. of our revenue and in addition other expenses were entailed upon us by the distribution of the literature. They on their side rather grumbled that they were not allowed to seek direct membership here, and our membership had not increased in the proportion that they anticipated and hoped, the reason very largely being that we were without funds to spend in propaganda work.

We approached them with the proposal that instead of paying them 75 per cent. we should split the fees 50/50, which to our idea was a very liberal offer. They, however, were unable to accept that. They had other members in the States outside of chapter territories and they were afraid that if they made

any further concessions to us some of those members who were not enjoying full membership privileges might also demand a reduction in their fees. Therefore they felt themselves obliged to refuse consideration of any change in the financial relations.

It was rather unfortunate for us, but we can admit the logical necessity under which the directors of the National Association were. We have been carrying on somewhat protracted negotiations with the American Society, which really only came to a conclusion on Wednesday of last week. We have done everything possible as a Board to maintain the relations. We tried to explore different avenues by which the relationship between us could be continued and our members continue to receive the National Association literature which has been very highly valued by many, perhaps even more highly valued than it really deserved. But as it was all that our Society was providing many members were afraid that to be deprived of that would leave them without any means of keeping abreast of the current thought on cost accounting subjects.

Having tried all we could, we were finally forced, somewhat reluctantly some of us, to the conclusion that the notice which the American Society had given us to terminate the agreement at the 31st of August this year should be concurred in.

While we took this step with reluctance I have no doubt that it will mark history for us in the Canadian Society. We are strong enough to-day to stand on our own feet. With the whole of our revenue to dispose of in Canada we are a great deal richer and stronger financially than we would be under any form of affiliation with our friends across the border. In the development of our Society we have to seek to supply some of the services that we have been getting through the medium of the National Association.

I am going to sketch out in a very brief way some of the forms of activity which I think this Society can follow. That will enable you to judge whether this Society is worthy of your support and continued adherence.

First of all we require to supply our literature. It has been suggested that instead of the semi-monthly bulletins this should take the form of a regular monthly magazine. I had hoped that we should have this magazine issued by the first of September, but owing to the delay caused by our desire to exhaust every effort to come to some arrangement with the National Society we kept putting off the necessary arrangements in the hope of ultimate success. We have not been able to issue a number yet, but the September number will be issued, I hope, towards the close of the month. I have here a dummy copy of the proposed magazine, it consists entirely of blank pages but on the outside there is a table of contents which we hope to issue.

This gives you a rough idea what we propose to offer our membership in lieu of what we have to forego. We expect to publish the more valuable papers from our own chapters, probably raising the standard of the chapter papers when members know they are to be printed in the Society's own journal. We shall have papers specially written for the magazine. We have at our disposal the literature of the English Institute of Cost and Works Accountants. I have a letter from the Secretary wishing us all success and giving us permission to reprint any of their literature that we consider useful to our membership. I have also a very nice letter from Mr. Dent, Secretary of the Institute of Industrial Engineers, putting at our disposal all their literature, and I have from Mr. Elbourne, the Honorary Director of the Institute of Administration in England, his permission to use the literature of his society.

Now while we look to have a considerable amount of original matter, the idea in our minds is that we shall gather together the best thought upon cost accounting and economic subjects from all sources. We have received in the preliminary inquiries that we have made a great deal of encouragement from different societies, who intimate that they are quite willing to stand behind us and work with us, exchanging their original matter for some of ours.

Another feature that we hope to start is our own reference library. That has been a project of the Directors for some years, but we have never had funds to get it started.

We propose to be more active in the formation of new chapters. Hitherto under the arrangement with the National Association it required a chapter of 52 members to be self-supporting. With the control of our own funds we shall be able to start chapters of 18 or 20 members without any drain on the Society's funds, and we have discussed already chapters in places like Windsor, London, Belleville, Kingston, Quebec and Sherbrooke.

These are indications that your Board is prepared to launch out and gather together an increased membership by the only means by which an increased membership can be hoped for, by offering service.

We also have in mind the subject of education. Tentative proposals have been made that the University of Toronto should put on a special course of lectures on cost accounting for the benefit of our members in Toronto, and we can probably arrange for a course to be given in Hamilton, and it is to be hoped that the Executive of our chapter in Montreal, a very strong and influential chapter, may be able to make similar arrangements for a course of lectures at McGill. One of our Directors there, Mr. Belanger, our Vice-President, brought this matter up over a year ago, and I think we shall be able to take some step in that direction.

Then this Society that I have spoken of, the Institute of Cost and Works Accountants, have been holding examinations very much after the style of the Institutes of Chartered Accountants and giving degrees. They have two, A.C.W.A. and F.C.W.A., the Associate and Fellowship degrees, and arrangements are possible with that Society by which their examination papers will be available for our membership, who can perhaps sit at the examinations in Toronto and in the event of success receive from the English Society the English degree.

These matters are to some extent in the air. These are really what we are going to discuss now that we are free to discuss them. I am merely naming them to show that we hope to be a really live and vigorous society.

Then we intend to do a little more than we have been able to do in the way of propaganda. There is a lack of interest in cost accounting subjects in the industrial community, not only in Canada but in the United States. We want to remove that, working along lines similar to those that Sir Hugh Poynter has been good enough to refer to in his paper. We shall be able to do more in that direction, I hope, in the future than we have done hitherto.

Then we propose also to put in our own research department. That is a work of immense importance, and one of our Directors, Mr. J. E. Carruthers, is going to take charge of this for us. It divides itself into two branches. Members have problems, and we want to establish a central bureau to which when difficulties arise they may write, and the Society as a society will endeavor to help them. Then there is a further matter in research; that is the development of the Principles of Cost Accounting, which, let me tell you, are only in their infant stage. Neither the National Association, nor, I think, the English Institute of Cost and Works Accountants have developed this branch of the subject to the extent that it can be developed, and I hope we as a Society will join our efforts with these other bodies in developing Cost Accounting from the scientific point of view.

Then lastly, we come to the subject of Conventions. This is our first indication of real activity, and I think you will admit that the support which the Directors have received is more than encouraging. We hope to make this an annual event. We have had most encouraging support from various speakers, as the programs you have show. If this be considered a successful Convention then it ought to be, I have no doubt will be, followed by another one next year. It may be that this Convention will take a peripatetic form, like that of the National Association, moving perhaps next year to Montreal, then to Hamilton, then back to Toronto, or it may be that Montreal will have its own independent convention and that the Toronto annual convention may be made a permanent feature of our work.

May I conclude with this remark: I am very glad to see so many people present, but I do not like the use of that expression "being present." I prefer the French form. They do not say that So and So was present at a meeting. They say that he "assisted" at the meeting. I am very glad, gentlemen, to express the hope that you are not here merely by your presence, but by your assistance. I hope that many of our members will assist in the work of the convention by taking part in our discussions.

Gentlemen, our first technical session will proceed immediately. Professor Michell of McMaster University is giving the opening paper. During this session Mr. Lorenzo Belanger, our highly esteemed Vice-President from Montreal, will act as Chairman.

FIRST TECHNICAL SESSION

Mr. L. Belanger, Chairman

MR. BELANGER: Gentlemen, it is a great honor to preside at this first technical session of our first Annual Convention. I sincerely hope that as the President mentioned the next Convention will be in Montreal, where we will try to make it interesting because conditions there are somewhat different in certain ways than here.

I am very glad also to preside during the lecture of Professor Michell. We are having quite a number of conversations with McGill as to the course to be given. I may say also that in Quebec City, where I have been trying to develop a program for the commercial faculty of the School of Commerce, advanced and cost accounting, mainly of course,—I may say your humble servant is a director of the School of Commerce there,—we may develop a Faculty of Cost Accounting. I pointed out that perhaps one cause of the trouble they had in one of their large industries there was because not one of the manufacturers knew what it cost them to produce a pair of shoes or boots.

In Montreal we had to force our way into the economic life of the city. Too many businesses have sprung up from the small merchants who began to be manufacturers in a small way, and it seems that in certain quarters costing or cost price are unknown or ignored. We have first to educate the people, then to have that education applied in practice. I think the first people we should approach, and we have been fairly successful in interesting them, are the universities.

I need not introduce Professor Michell to a Toronto audience, but I am sure we will be very glad to hear of the Economic Cycle. Then as we proceed we shall see the influence that accounting in general, and costing, may have on the economic life of the country.

The Business Cycle in its Relation to Costs of Production in Manufacturing

By H. MICHELL, M.A.
Professor of Political Economy In McMaster University

MR. CHAIRMAN AND GENTLEMEN:

WHAT is generally, but inaccurately, known as the "business cycle" is that phenomenon in the course of business whereby periods of prosperity are followed by periods of depression, and then again by further periods of prosperity.

The apparent regularity of these alternations of good and bad times has led observers to dub these ups and down a "cycle," like a wheel revolving round and round. The term cycle is unfortunate, because if a wheel revolve on its axis its motion will be presumbly regular and it will take a given place on the wheel the same time to turn from the highest point to the lowest as from the lowest to the highest. Now this is the exact point where the so-called "business cycle" breaks down. It is all very well to depict the different phases from prosperity to depression and depression round again to prosperity as so many points on a wheel, but it all goes wrong when you begin to turn the wheel, because then you find that the wheel revolves in a very erratic fashion in a series of jerks, sometimes quickly and sometimes slowly. Sometimes a complete revolution from prosperity to depression and round again to prosperity will take a short time, perhaps about 40 months; again it will revolve slowly, say about 52 months and sometimes even 60 months. Or again you may even have what we can only call a half-cycle, or "hemi-cycle," of somewhere between 22 and 30 months. And so on, until the task of measuring, and much more so of forecasting, the duration of the cycle becomes utterly hopeless. We are, therefore, confronted with the strange physical phenomenon of a cycle or wheel that is sometimes revolving at great speed and sometimes very slowly, and sometimes apparently swelling and at others contracting. Our first conclusion, therefore, is that in trying to anticipate the duration and regularity of the cycle we are hopelessly at fault.

THE CAUSE OF CYCLICAL MOTION

This failure to measure the cycle, or rather in trying to impose a measure on it, has rather serious consequences because it implies that we cannot arrive at any clear cut and satisfying explanation of the causes of the cycle. Stanley Jevons, the very eminent English economist, observed that financial crises occurred about every 10 or 11 years, and he also observed that the maxima and minima of sun-spots occurred every 11 years. He therefore propounded the suggestion that perhaps there was a causal connection between the two, because, he suggested, sun-spots affect the weather and the weather affects the crops, and the bounty of nature lies at the root of all human prosperity, and in corroboration of his suggestions he adduced some very striking evidence. Now Jevons was by no means foolish and his suggestion very far from an impossible one, but unfortunately his hypothesis has never been satisfactorily established, and the only verdict we can bring in is that of "unproven."

THE PHASES OF THE CYCLE

Working along the lines of trying to prove a regular cycle of crop production, but not necessarily connecting it with sun-spots, some most interesting researches have been made in recent years by Sir William Beveridge in London and Professor H. L. Moore of Columbia University, and I am constrained to add by a certain journalist in Washington who has earned some notoriety by predicting the year 1926 as one without a summer. Unfortunately all these excessively laborious and highly ingenious researches have not carried us very far and so we are still unable to find one single cause, as crop production or the bounty of nature, to account for the cycle.

THE PROSPERITY PHASE OF THE CYCLE

But while we must acknowledge defeat, or perhaps more justly acknowledge that we are not getting along very fast along these lines, yet we can at least claim that we are beginning to understand quite a little about this somewhat mysterious cycle, and it is to several points that must be of particular interest to cost accountants that I particularly desire to-day to draw your attention. Let us dismiss from our minds any preconceptions we may have as to the causes of this cyclical motion, and simply ask ourselves the plain question, why does not prosperity last always? Why, when business is good does not business remain good? You will answer for a dozen different reasons, in which you will be perfectly correct.

Let us now examine some of these reasons. Let us take any large manufacturing concern, it does not matter in the slightest what it may be, anything you please, and let us suppose that business is simply fine, and to all appearances likely to be better. There is general confidence in the business world, and everything is set for a 'boom." Now on the side of costs of carrying a business what is going

to happen? I speak with considerable diffidence in the presence of you professional Cost Accountants, but I daresay I shall not go very far wrong if I outline the course of costs of doing business as being more or less as follows:—First, as the boom in business grows, various costs in doing business advance at a more rapid rate than the prices at which the goods manufactured may be sold. It is, of course, well known that wholesale prices advance more rapidly than retail, because wholesale prices reflect forward to goods that when finished and put on the market will be sold at retail. For the same reason the prices of raw materials rise more rapidly and higher relatively than the cost of finished articles. This I believe to be a point of extreme importance and I venture to commend it to the attention of cost accountants. Permit me to reiterate the point. Wholesale prices rise or fall quicker than retail prices, and the prices of raw materials are affected in the same manner, and also rise higher and fall lower than prices of finished products. This means that the costs of doing business advance more rapidly than the returns from that business. While the manufacturer is called upon for further and further advances in costs, his returns come in tardily. Secondly, of course the manufacturer has to be helped in this increased cost of doing business by the banks, which increase their loans and stretch their possibilities of extending credit as far as they consider wise. Thirdly, other costs of doing business increase in like measure. Wages rise and managers are plagued with labor troubles, constant disputes and strikes for higher wages. Labor efficiency, and it certainly must be added managerial efficiency, declines. With the rush of work coming in, less experienced hands are taken on, and even the best workmen tend to become careless. To sum up this phase of the cycle we may say that it is characterized by very rapidly increasing costs, which if they cannot be handed on promptly and effectually to the consumer are going to make the carrying on of business more and more difficult and more and more expensive.

The Second Phase of the Cycle

It is easy to see how we must soon enter the second phase of the cycle. In retail business there is always found a very noticeable resistance to increased prices, more so in some lines than in others, notably in lines of commodities the staple prices of which are well known by the the purchasing public. We all know how prone people are to say "I have always paid such and such for this, and I am not going to pay any more." Of course if the rise in prices is definite and irresistible the public will have to pay; but it will come to that necessity slowly, and will try to find substitutes if possible. There are other prices which can be raised even more hardly, such as public utilities. Some cannot be raised at all without special legislation, for instance street railway fares, telephone rates, freight rates, etc., and with the rapidly increasing cost of production these corporations find themselves in greater difficulties.

We now find ourselves in a period of maladjustment. Manufacturers begin to be troubled about the situation because it is on them that the strain falls. The producers of the raw materials are all right, because they can, and have, raised their prices very satisfactorily to themselves. The retailers are doing all right because ready money is coming in to them day by day over the counter. But the manufacturer is getting harrassed from all sides. The retailers are protesting that his prices are too high, and he is trying to keep them down with mounting production costs. Some materials advance very swiftly and violently in price, others lag behind for a number of reasons. For instance we may recall the amazing gyrations of the metal markets in 1919-20, of cotton and wool, etc.

The Period of Maladjustment

Dr. Persons of Harvard has very conveniently summarized the situation. "As a period of prosperity develops, the costs of materials regularly outrun the prices of finished goods; the values of manufacturers' inventories of materials increase disproportionately to selling prices and to business done, even with a constant physical volume of stocks and production. Paper profits accumulate; the attempt to realize these profits through increased selling prices always fails ultimately; a decline in the cost of materials then occurs and is followed by general price declines and business recession; costs of materials decline more drastically than do selling prices. At their new costs and selling prices manufacture again becomes profitable; business revives and the cycle is complete."

In quoting Dr. Persons we have run a little ahead of our study of the cycle up to the point where increasing costs have caused such inequalities and maladjustments as to create a dangerous situation. Then comes the break, wholesale prices go down headlong, and already the stock exchange has shown the way by a violent bear movement. The banks begin curtailing credit and a slump follows with distress and loss.

The Fallacy of "The Buyers' Strike"

And at this point allow me to point out very carefully that there is no "buyers' strike" as is so often supposed. It is very easy to demonstrate, and I can do so from actual records of retail businesses in Canada, that retail sales did not decline until three or four months after the break in wholesale prices in May, 1920. I want to ask your very particular attention to that point because it is of great import-

ance. Let me repeat it; there was no buyers' strike in the popular sense in 1920. Wholesale prices definitely broke in May, 1920, but there was no slackening of retail sales until July or August. What had happened in May, 1920? The violent irregularities and maladjustments in costs of production had worked their own destruction. The whole machinery of production was being thrown into confusion and the more farsighted manufacturers and financiers clearly anticipated a breakdown. Already, by March, 1920, the banks in Canada were alarmed and had instructed their managers to pursue a cautious policy. The stock exchange had experienced a drastic readjustment, owing to the policy of the Federal Reserve Board in the United States, and that readjustment had been in progress since the beginning of November, 1919. Wholesale prices broke in May, 1920, for the following reasons: First, the first great rush for the revictualling and restocking of Europe was over. Second, the armies had been got home and refitted and to a large extent reabsorbed in the population. Third, the more farsighted had begun to see that this boom in buying was fast approaching a climax. The world was in need of all sorts of commodities, but it was desperately poor; it would buy what was positively needful for some sort of rehabilitation, but it would buy no more. Fourth, as I have already said, production costs had become impossible. Labor was restless, and the employer was harrassed by incessant demands for higher wages, demands that were clearly justifiable with the soaring cost of living, and, what was very human but not so justifiable, a progressive deterioration in labor efficiency. The whole machinery of production was racing, just as an engine races, and a breakdown was palpably inevitable. Well, the breakdown came right enough, and the world saw the great slump of 1921-22, from the effects of which we have not wholly recovered even yet.

Costs and the Cycle

Of course it is quite easy to take any particular instance, say the great break of 1920, and point out its quite distinguishable causes, but it is much harder to speak of the cycle in a general sense, and at this point may I appeal to you cost accountants to help in the elucidation of the phenomena we are trying to study. I venture to think that so far our examination of the course of the cycle has been fairly clear. We can see very well that factory output at current prices tends to outrun potential buying, and that all sorts of irregularities and inequalities and maladjustments in prices have been set up. But there are two problems that still await complete elucidation, and these are the explanation of this maladjustment and its remedy. Allow me to put it somewhat in this fashion: Let me imagine one of you gentlemen reasoning thus. My business was very hard hit in the slump of 1920 and '21, because we had accumulated large stocks of raw materials and finished articles that we had purchased and manufactured at very high prices. These we could not dispose of except at a heavy loss and we were forced to take that loss. Looking back on it now, how could we have obviated that loss? The answer of course would be that, being doubtless gifted with supernatural wisdom, you should have exercised far greater caution in accumulating those stocks. But that was very difficult, as doubtless you all remember. Some time ago I talked to an exceedingly well-informed and shrewd Canadian manufacturer. He told me he had lost heavily in 1921, but he also said that he knew of no way by which he could have avoided it. "There were the orders," he said, "pressing for delivery. I had to buy my raw materials at constantly increasing prices. I was well aware that the prices that were being imposed upon me were exorbitant, and I was also painfully aware that in order to cover my costs of production I was being forced to charge my customers prices that were equally exorbitant. But what could I do, with customers clamouring for delivery?" If an exceptionally well-informed manufacturer with all his wits about him and with a full realization that the situation was becoming dangerous in the beginning of 1920, is yet practically forced to sustain a heavy loss, I ask you what was the state of the reckless and the plunger in the slump? And now what is the explanation of it all?

Do you see that we are trying to narrow down the inquiry to this point of maladjustments in production costs. Everything was out of kilter. Manufacturers were afraid they were going to be left behind, and in order to protect themselves were forced into the market to buy their raw materials at practically any price they could get them at, and prices began to run wild with all sorts of astonishing results. Just exactly why did we have that most astounding rush up in prices which culminated in the spring of 1920? The index number of wholesale prices which I compile myself stood at 115 in May, 1914, and at 270 in May, 1920. Foodstuffs advanced from 125 to 317; manufacturers' goods from 105 to 230. I wish you gentlemen would give me a really satisfying and comprehensive explanation of that amazing leap up, for I declare that after six years of pondering on the phenomenon I am far from being satisfied that I understand it clearly in every particular. Of course we say it was the war. Yes, I suppose it was the war. Of course you can take all sorts of different staple commodities and account for their rise and fall in price. Take raw cotton for instance. We know all about the boll-weevil. Take the metals, we know all about the great demand for all metals during the war. Take sugar, a very interesting study, and we know the story of the curtailing of beet sugar export from Europe during the war.

And so on and so forth all down the line. That is not too difficult to do, and the result seems to be that we find one great staple commodity after another "running wild" if I may be allowed the expression. If we were to plot a chart of say twenty or thirty principal lines of manufacture and consumption we would have an effect of a shower of rockets rising and bursting and falling. But they are not all discharged at the same instant, some rise higher than others, some rise only a comparatively short way, burst and fall quickly. Just to give a few instances, let me cite the following great staple commodities of manufacture and consumption which reached their highest prices in the following months of 1919 and 1920:—

Raw Cotton	April, 1920
Hides and Leather	July, 1919
Iron bar	Sept. 1920
Lead	March, 1920
Copper	July, 1919
Tin	April, 1920
Sugar	July, 1920
Potatoes	May, 1920
Lard	August, 1919

This list might be indefinitely extended, and the effect would simply be to multiply the confusion of our bursting rockets. The result is a confusion, a collection of inequalities and maladjustments, and it is this confusion that works its own destruction.

The only possible thing that I can say is that when you observe any great staple violently out of adjustment with the general movement of prices danger lies ahead; and when you see a great many staple commodities moving erratically, you may be perfectly sure that something actively unpleasant is surely going to happen. A moment ago I referred to sugar, the movement of which I have had occasion of late to study with some care. It is, of course, well known that the sugar industry all over the world, has been passing through a time of great stress. If you study the course of sugar prices over the last seven years you will be amazed at its violent "aberrations" in price. Thus, in July, 1920, the price of granulated sugar was almost precisely 100 per cent. higher than the general price level. In May, 1922, it was 13 per cent. below the general level; in May, 1923, sugar was 37 per cent. above the general level. In July, 1926, sugar was 16 per cent. below the general level of wholesale prices in Canada.

I want to be entirely candid and confess that I am floundering about in water completely out of my depth. I cannot show you a way out of the confusion. I am not completely convinced that any one single path leads out of the muddle. But one thing does emerge as quite undoubted, namely, that it is this violent running wild of prices of various staple commodities that works the mischief, and among these staple commodities I must include labor. Another very serious consequence is that these violent rises in price have a most unfortunate effect on the quality of the goods manufactured. The resistance of the public to paying higher prices is so great that a manufacturer is forced to make his goods in a cheaper fashion. Mind you, I do not altogether accuse him of malpractice. The public won't willingly give a higher price for the commodity that is costing him a great deal more to make. What can the manufacturer do but try and reduce production costs which generally, but of course not always, means a lowering in the quality of the goods he turns out. And all this confusion works its own downfall.

I said a little time ago that there was no such thing as a "buyer's strike," nor is there, but this period of confusion reacts upon the buyer, the ultimate consumer. There was not going to be a great deal of home canning in the autumn of 1920 with granulated sugar at 25 cents a pound, I am sure, and I dare say we would all have grown progressively shabbier with clothing at the price it was then, and we can remember the distress sales of clothing a couple of years later. Of course push a rise of prices to its extremity as in a period of inflation, as we lately witnessed in Germany and we are now witnessing in France, and the buyer is forced into the market to try and get whatever he can with his quickly depreciating money. But setting that very interesting phenomenon aside, this skyrocketting of prices is going to break down potential buying. If I have not the money sufficient for a new suit of clothes I will go shabby, and the buying public was fast approaching that stage when shabbiness was inevitable. And so we might go on indefinitely following the consequences of these violent aberrations of prices.

And now how are they to be obviated? Frankly I do not know; I do not think anybody knows. But there does seem some hope that we may be able to mitigate the severity of these periodic disturbances. For instance, there can be no question whatever that the control of credit in the United States by the Federal Reserve System has done much to keep production and finance on an even keel since 1920. But these disturbances are world-wide and strike much deeper than the banking system of one country, even if that country be the United States. Do you see, gentlemen, we are back again to the fundamental causes which we spoke of at the beginning and are still unsolved. There lies a tremendous field of research along these lines, and a great deal of very acute research is being prosecuted.

But allow me to bring this whole matter very strongly to the attention of you gentlemen who are engaged in cost accounting. It has to do with the very essence of your work, or so I apprehend. These, "cyclical" fluctuations, to call them that if you like, are characterized by the tendency of prices of raw

materials to "scatter," if I may use that term. As the "scatter" of prices grows more and more pronounced, as one commodity after another soars on its rocket-like path industry becomes more disorganized. You cost accountants are in daily and hourly touch with such phenomena, it is your profession to be so. I ask you to take your minds back to 1919-20. Were you, or were you not aware during that hectic period that your costs of production were running wild? I am perfectly sure that you all were beginning to feel more and more uncomfortable. And yet you were all in the grip of circumstance. As that very astute manufacturer I spoke of some time since said, there were the orders clamouring for delivery. It would take an almost superhuman strength of mind to refuse them.

I do suggest to you gentlemen that with you, whose profession is the study of costs, lies the duty of providing the restraining force to prevent production running wild. You watch your production costs mounting and observe one item after another "sky-rocketting." You begin to feel uncomfortable but the only thing is to go on, hoping that the increased cost can be absorbed by the selling price. How far can you push up your selling price so that the purchasing public will stand for it? And also remember that what you pay for raw material will mount more quickly than what you will receive for the finished product and your manufacturing costs will outstrip retail prices. When you really consider it carefully you will realize that the cost accountant has his hand on the very pulse of the business cycle. Once let your costs of production run wild and increase so rapidly and to such a height that the possibility of their being absorbed by the selling price of your commodity becomes problematical and the way is absolutely clear to a break in the phase of prosperity of the economic cycle.

And now, gentlemen, have we arrived at anything definite? I venture to suggest that something is beginning to appear perhaps through a glass darkly, but at least the outlines are there. Permit me to sum up our conclusions concisely.

1. We must admit that we do not clearly understand every phenomenon of the so-called economic cycle.

2. So far as we can judge these cycles are what we may term "self-generating," that is to say they move of their own momentum.

3. The phase of prosperity or "boom" is accompanied by a tendency of prices of raw materials to "sky-rocket." One after another they rise to great heights and then topple over of their own weight.

4. Costs of production and wholesale prices advance more quickly than retail prices. It is when costs of production reach the point where they cannot be passed on to the ultimate consumer that the break comes.

5. The only way to mitigate or prevent such disasters is for such experts as those engaged in cost-accounting to sound the alarm when it becomes perfectly plain to them that production costs are running wild.

Such are my conclusions. I wish I could be more certain but as I have remarked over and over again, we do not clearly see the solution of the whole problem of the cycle. But because there are still unexplored regions does not for an instant mean that we may simply throw up our hands and trust blindly to fate. I believe that we are entering on a period of exploration of the whole field of commerce and finance that must, sooner or later, produce results of enormous importance. Business in the past has been carried on largely on the the principle of trial and error, and it has only been through amazing advances in technical achievement that we have not made a greater mess of things than we have. Wealth has come too easily to the world and now we are faced very disconcertingly with the possibility of losing that wealth; great portions of the world came within a hairs-breadth of losing it after the war, and are still not safe. The skilled craftsman with his machines has done his best, now it belongs to the statistician and the cost accountant to give their contribution to the problem of the production and conservation of wealth, which in the last analysis, means the conservation of human happiness.

DISCUSSION

THE CHAIRMAN (Mr. Belanger): I might start the discussion by asking if Prof. Michell has studied the influence of the automobile trade, its abnormal development in recent years, on the economic cycle?

PROF. MICHELL: The motor car industry is an enigma. Statisticians do not know what to make of it, they say so quite frankly. Over and over again they have talked of the saturation point being about reached, and over and over they have been proved wrong. I think they have given up the automobile industry as being beyond them.

MR. JAMIESON: I have listened with the greatest pleasure to the excellent address that we have just heard. I think it is a very worthy contribution to the records of our Society, and not merely that, but to the literature of our Canadian economic life.

I take the opportunity of suggesting that Prof. Michell has not looked altogether in the right direction for the solution, that the solution does not lie altogether in statistics or facts. We cannot separate ourselves altogether from the human element, and it seems to me that the question asked by Prof. Michell, why everybody is running wild, and why prosperity comes and subsequent depression, can be answered if we look for the cause. Our President has always impressed upon us that there is no effect

without a cause, and if we look largely enough we will find it.

A great disease or condition cannot be altogether caused by some small particular fact, there must be some general cause. I think the cause of some of the wild booms and subsequent depression can be found if we look for some broad condition. I think the cause will be found in some broad general need, it may be a regional need, a national or an international need, something that is unexpected, that suddenly develops and causes a reaction in a host of individuals, each and everyone of whom seeks to take advantage of it. It is perfectly legitimate for them to do so, but in their ignorance they each proceed without regard to the other members of the industry or community of which they are a part.

In England the work of the Coal Commission covered all these problems. It is very comprehensive, it dealt with the conditions, physical and individual. I think their findings would repay the study of every member of our Society. I think they can be put briefly thus; they found that the cause of trouble was small scale production and small scale distribution, and recommended larger scale production and distribution, in a word industrial co-operation, the beginnings of which we find largely in the country to the south, and already here in Canada there is a similar movement. Co-operation so that there will be sensible direction of effort with the object of avoiding over-production, over-buying, and over-selling. So we have that particular cause brought out in that report.

The second recommendation is that there should be a very much greater application of science in methods of production, and not only there but in the use of the materials produced.

And the third recommendation is that that indefinable thing, co-operation between the persons in industry, should receive the definite and positive attention of executives.

MR. CRAIG: I desire to join with Mr. Jamieson in commending the very thoughtful and illuminating paper that we have heard. No doubt we shall all have opportunity of reading and studying that paper more closely when we get it into print.

I think there are few subjects of more interest and more vital to the average business executive than that of means by which he can forecast the trend of future events in the economic field. If a study of business cycles will enable the executive to look forward, it may be only guessing, but to guess with intelligence what are to be the future movements not only of his own business but of other businesses, it is a very valuable service to him.

Prof. Michell referred to the barometer of the Stock Exchange. I am not disposed to rate that very highly, because the Stock Exchange is influenced by a great many different movements and policies, and the movement of stocks generally is not a sufficiently close and particular indication of the trend of general business. Certain of the basic industries do give an indication. I recollect many years ago in a political speech in England Mr. Disraeli when he was Premier, speaking upon the influence of policy upon trade conditions, advised his hearers to "watch chemicals", the chemical trade being an indicator to a large extent in England, a great deal more than it would be in Canada. I should say that to interpret that in relation to Canadian conditions we should rather say "watch the steel trade", steel forming a very large part of the basis of other industries.

In looking at these trends there is one thing we notice, that is, that they are not uuniversal. Some trades are more readily and more largely affected than others, and in some cases some firms in a particular trade are more affected than others in the same trade. We have seen, when a sort of slump was coming, or a boom as the case may be, that certain firms were suffering the slump or enjoying the boom, with other firms in the same trade comparatively unaffected. It is very difficult to get the reasons why that condition of affairs should obtain. It would be very valuable if we could by observation and research figure out what are the main causes of this upward and downward tendency, because while they may not affect all firms at the same time, ultimately they do.

It is rather singular how blind we have been in the past to many of those changes. After the war some of us expected an immediate slump. After the Armistice there was a sort of slump in business for a few weeks, then a period of hectic production and consumption set in, followed by a more decided slump. Looking back I think we can see that what did happen was what we should have expected, yet how few people did. When the boom set in in 1919 manufacturers seemed to expect that it was a continuing boom, and were caught very seriously in the slump that followed. Yet when we look back many of us feel that we should have foreseen the results that actually took place.

I sometimes think that we might better understand these economic cycles and be able to forecast their tendency or course if we were to realize that we ourselves have considerable influence in making them. When things are good there is always a tendency to push the boom to the limit, to expand until you really get over the top and are going down the hill. I think if there was more careful production when times are good the good times would not be so generally followed by a slump.

I think there is a certain co-relation between production and purchasing power. We look too much perhaps to the production side, without having regard to the purchasing power of the people. I believe we would get a better knowledge and understanding of these economic cycles if we directed our

attention more to studying the growth or falling off of the purchasing capacity of the people.

One thing I think may be noted is that certain industries are more affected by a boom or slump than others. Those industries which have to do with the machinery and equipment for production are more seriously affected than those producing articles for consumption. How far that supposition of mine is correct I am not sure, but it seems to me that the effect of the economic cycle is more felt by those who are working for others than those producing articles for direct consumption.

LUNCHEON SPEECHES

MR. R. L. WRIGHT speaking at the Luncheon on the first day of the Convention, said:

I do not know any man who has done as much as our President to place Cost Accounting on the high plane where it ought to be, and I think the success of this Convention is largely due to his efforts. In coming years when you celebrate the 10th or 40th Anniversary of this occasion and Massey Hall or some similar place has to be engaged to house it, you will look back with pride and pleasure upon the work so successfully done in organizing this, the first Convention of its kind in this Dominion.

It is particularly fortunate that we can meet for the purpose of this convention in such a wonderful atmosphere and such dignified surroundings. It is not easy to speak of the beauty of the building in which we are assembled. Hart House stands unique amongst similar institutions on this side of the Atlantic. It compares in beauty and atmosphere with some of those older colleges that stand amid the slender spires of Oxford and the green lawns of Cambridge, but it has in addition an atmosphere essentially its own. Against a background of tradition, against architectural beauty which exemplifies the highest development of gothic architecture it has a foreground of modernism, a forward outlook in the sciences and the arts that lead the civilization of our century. It is a monument in stone and wood representing that unchangeable spirit of loyalty to the best in the older culture and the desire for progress that is inherent in this new nationality which we are slowly and perchance painfully building up in this land; a new national spirit, independent of the parrot cries of politics, realizing its responsibility in the development of this country, bringing it into the forefront of the nations of the world and making Canadians a united people.

In producing that result is it too much to say that this Society can take a large part? After all idealism is the root of real progress. But flowing from the idealism which inspires us is the work of industrial expansion toward which our endeavour is focussed. In the development of the resources of a great land like this and in making a new nation industry must of necessity play a predominant part. In the success of industry are founded all the other things that count; education, which would die unless it had the monetary support that comes as the result of industrial endeavour; morality, or any other thing that counts in life. We are happy to have with us the representative of the church, testifying to the fact that there is a definite alliance and must be a definite understanding between the forces of industry and the forces of the church in order that both may play their part in developing the menhood of the country. The solution of the problems that face industry to-day will depend to some extent at least upon the sympathy with which the churches regard the workers and those engaged in the development of Canadian industry.

If our industry is to develop properly there must be a rigid adherence to those principles of efficiency which have proved themselves. In other words Industry is dependent for its satisfactory development upon the application in practice of efficient administrative and production principles. To see that these principles are applied and carried out is I take it one of the predominant reasons for the existence of this organization. And lest we be thought too proud, let us make it clear that we are not setting the Cost Accountant up upon an industrial throne and rendering homage to him as saviour of the country, but we are stating that he occupies a very definite place in the industrial organization upon which the future development of this country must be built. Therefore the Cost Accountant should have pride in himself, pride in his vocation and organization, and willingness at all times to co-operate with others of a similar persuasion to produce the best that the combined skill and brains of their professions can produce. That is the ideal which I know is the motive power behind your President this year, to place the status of the Cost Accountant upon a definite plane of recognition and to make him the keystone as it were of the industrial organization, because upon him depends to a large extent the success or failure of any undertaking, whether it is productive or distributive or merely performing a service. Profits count, losses must be checked, and the Cost Accountant is the one man in the organization whose business it is to bring all the factors into clear focus so that the executive upon whose judgment that organization depends may view them in such form that he can formulate a clear decision and lay out a clear course and steer the ship of industry over the seas of competition and unrest.

In connection with this Convention we should not forget that we have received the active co-operation of a large number of firms whose products are used in industrial administration. I am sure that all those present would wish me upon this occasion to convey

to these exhibitors the thanks of the Society for their co-operation. It is of the greatest value to us to see in practical demonstration the various appliances which aim to reduce costs and make for more accurate craftsmanship in our own departments. I trust these exhibitors will be rewarded, if not by a large volume of orders, at least by greater interest on the part of all those present in the work their products perform.

In closing may I again stress our obligation to the authorities of Hart House who have co-operated with your Committee to the fullest extent, there has been no stint on any account.

MR. J. R. GILLEY
Dining Room Comptroller

HART HOUSE

MR. CHAIRMAN, LADIES AND GENTLEMEN:

I am very sorry that the Warden, Mr. Bickersteth, is out of the city and for this reason Mr. Craig has asked me to say a few words regarding Hart House.

On behalf of the Warden and the Board of Stewards I desire to welcome you to Hart House and I trust that the two days spent within these walls may not be without profit to every member of the Society.

Hart House is so called in memory of the late Mr. Hart Massey of Toronto. Every male undergraduate is required to join Hart House, towards the upkeep of which he pays an annual fee of eight dollars. In its widest interpretation the House seeks to provide for all those activities of the undergraduate life which lie outside the actual lecture room.

The Board of Stewards, which is responsible to the Board of Governors of the University, is the governing body of Hart House and is so constituted as to include among its members the secretaries of the six standing committees and representatives of the chief organizations in Hart House. The Warden is the chairman of the Board of Stewards. The six standing committees are: House, Hall, Library, Music, Billiard and Sketch. These committees consist of two Faculty members, a Graduate member, the Warden, and ten undergraduates. The undergraduates are elected annually by their fellow members. There are also the special committees: Camera, Squash Racquets and Debating.

All the activities of the House come under the direction of one of these committees and rooms of almost every description have been provided for these activities. Hart House contains common rooms, a reading room, library, music room, sketch room, a small chapel, photographic dark rooms, several gymnasia and a running track, a swimming pool, a rifle range, billiard room, barber shop, a theatre, and the great hall in which you are now sitting. This is the undergraduates' dining room. A Sunday Evening Concert is given here every third Sunday evening during the term, the artist being one of the well-known musicians of the city. Also there is a recital given every Friday afternoon at 5 o'clock during the academic year and you will find the Music Room well filled then even though there are many other attractions at that time. In the Sketch Room there is an exhibition throughout the whole of the year. These exhibitions are changed every two weeks. Sketch classes are conducted by a well-known artist here every Thursday evening. Monthly debates following parliamentary rules of procedure are held in the Lecture Room.

From these few remarks you will see that the members of the House have facilities provided for all these activities under ideal circumstances. Let me again express regret that Mr. Bickersteth is not here to give you a more adequate explanation of the whole house. If anyone is interested in seeing any part of Hart House he will be gladly shown it by a member of the Hart House staff.

Waste Elimination as a Factor in Cost Reduction

By C. E. KNOEPPEL

Director, The Society of Industrial Engineers
Chairman, Mr. James Turner

IF I had the making of the title over again I would have it read The Art of Making Profits, because that is what it narrows down to. So I am going to start from the financial angle.

The head of one of the large ship-building concerns in the United States, whose brother was production manager of the plant, said to his brother, "You keep talking to me about production and waste and savings, but somehow when I look at the balance sheet at the end of the month I am not able to see reflected in the income statement and balance sheet the savings you say have been made. I am beginning to wonder about it." And I, too, have wondered, in the study of Cost Accounting and Industrial Engineering and Waste Elimination, why we do not get back to the real source of our information. In other words, more and more it is being borne in upon me that the balance sheet and the income statement constitute the prologue and epilogue of the great drama of profit-making. That, therefore, interests an audience of this kind. It is from that angle I will approach it.

In 1921, according to the United States Treasury Department, there were 356,397 concerns making reports. Slightly more than one-half of them (185,158) reported deficits amounting to $4,000,000,000. Slightly less than one-half (171,239) made profits of about $4,000,000,000. Practically a fifty-fifty proposition.

If I had had the chance to review for your information the analysis of the 1925 earnings in the States you would be surprised to find that only 94 of all the organizations in the States made more than $10,000,000. That 94 did not include any of the great woollen companies, textile companies, woodworking or brass and iron companies, not one of the great lumber companies that provided the timber for the unparalleled building program, nor of the publishing houses printing a weekly charging $7,000 for a page of advertising in one issue.

The Chairman of the Board of the General Electric Company recently enunciated an important principle which I think we can all keep in mind, all Americans—and by that I mean those in Mexico, the United States and this great Dominion, because we all have a common problem on this North American Continent, that is the elimination of waste; he said:—

> "I know of no way concerns can make profits unless they render service, and, conversely, if they do not make profits they cannot render service."

Then he went on to say:—

> "Why is it that a concern which does not render service enough to make profits is permitted to use our labor, of which we have not too great a supply, or our capital, which is always difficult to get, for unprofitable use to society?"

Because a concern that makes losses is not profitable to society. By his enunciation of that important principle, Mr. Young meant that any concern making or supplying a need with a plant and management as good as the average or better has a right to and should make a fair average profit over a period of years, and if it does not there is something wrong with the business, and therefore someone, primarily the cost man, should find out the reason why. That is a big picture of the Cost Accountant.

But we must make it bigger. Failure to earn a profit means waste in some form. We cannot tackle waste until we know what and where it is. There is no reason why all concerns meeting this great need of service should not make profits.

Some years ago it was my pleasure to testify before the Federal Trade Commission in Washington in a hearing between manufacturers and users of a product as to what was a fair price. For the users in their case against the manufacturers I was able to work out ten principles, the tenth being the question of a fair rate of return, and my statement was accepted by the opposing accountants and the members of the Federal Trade Commission. It was this: "A fair rate of return on capital investment in industry is one which reconciles the difference between a safe and sure investment, and one in which risk, uncertainty and speculative character of business are factors." This being so, it would seem that a fair return would be one which nets two to three times a safe or guaranteed return, and if we assume this to range from 4½ to 6 per cent., then the fair return on capital invested in industry would range from 9 to 18 per cent. as an average over a period of years.

These pertinent questions come up to every executive in business. At what point in a business does loss cease and profit begin? What volume is necessary to earn fixed and semi-fixed overhead? What capacity must be kept employed to earn cost of sales, taxes, interest on borrowed money and pay preferred dividends? And then over and above that, what is necessary as further capacity to be kept

busy to earn common stock dividends and build a fair surplus?

Those four questions should be answered by known facts in any business. I see many concerns that are working these out, and if time permits we may come to one or two of them. As one studies and attempts to answer those four questions he becomes convinced of this, that business has reached a point where it is as much a matter of skill and prophecy as ability to make and sell, due to the fact that external conditions exert as potent an influence over the making of profits as internal ones, if not more so.

Three, among many things, are responsible for that statement; first, population, wage-earners and wage increases. From 1900 to 1920 the population of the United States increased 40 per cent., wage-earners 94 per cent. and wages 425 per cent. Another factor is the decline in the purchasing power of the dollar, which I need not go into because that is a subject for the economist to discuss. The third is that in my travels through various States I am met on all sides with this statement, We never had a time when relative margins of profit were so small.

Those three factors have a bearing on the fact that to-morrow it is the prophet who is going to make the profits. We must give more and more thought to the external conditions which are so potent an influence.

This brings me to the question of waste. It was my great good fortune to be selected by Mr. Hoover in 1921 as a member of his committee of 18 that surveyed that subject of Waste in Industry, and I was on the committee that helped to formulate the plans. If you have read the report you were no doubt surprised at the extent of waste. We studied these major industries: Metal Trades, Boots and Shoes, Textiles, Building Trades, Printing, Men's Clothing. (Others studied did not get into the report). The conclusion was that waste in these trades was 42 per cent. on a weighted average basis. Another conclusion was that over 50 per cent. of the responsibility for waste could be laid at the door of management, less than 25 per cent. at the door of labor, and the balance to outside causes.

I have taken the liberty of figuring out—and I have to talk in terms of the States, as you can understand, but you can apply it because it is a relative problem, that the value of manufacturing products and mines and quarries in the last census gave a figure of $66,000,000,000. Forty-two per cent. of that is $28,000,000,000 a year. I have cut it in half, which gives a wastage yearly in the United States of $14,000,000,000, of which $3,360,000,000 is caused indirectly by labor, and two and a half times that, $8,400,000,000, by management, a total of $11,760,000,000 that management and labor control directly and indirectly.

That gives a picture of the size of the problem of waste elimination. Obviously waste is a good deal like coal mining. Coal mining is under the surface, you can only detect it by outcroppings or by digging in territory where coal is supposed to exist. Of course if the waste were known it would be eliminated. It is a factor in business, but we do not always know where it is; it has to be searched out.

Manufacturers sometimes quarrel with this arraignment that over 50 per cent. of waste is that of management. If that point comes up I will be glad to explain why I feel convinced that the committee made no mistake in making that statement. It is a management problem rather than labor's, although it affects labor.

To give a few outstanding facts about waste, because the subject is altogether too big for brief discussion, I will just "Hit the high spots." In our reports we found these facts: Idleness in shoemaking amounts to as much as 35 per cent. of the time of the workers. Standardization of the thickness of certain walls might mean a saving of some $600 in the cost of the average house. There are approximately 6,000 brands of paper, 50 per cent. of which are more or less inactive. Standardization of newspaper columns to one size would make possible an annual saving of $3,000,000 to $5,000,000 on composition and plate work. Fixing the value of the men's ready-made clothing industry at $600,000,000, it should be relatively easy to save three-quarters of a million dollars a day. We have in New York City a five-twelfths spread, that is they work five months in the year. Printing establishments are 50 per cent. over-equipped. The shoe industry has a capacity of 1,750,000 pairs a day, but produces little more than half that number. Throughout the metal trades standardization of products would permit of large reductions in plant and equipment. In the coal mining industry over the past thirty years miners were idle an average of 93 working days a year, building trades workmen are only employed 190 days a year, the clothing worker is idle 30 per cent. of the year.

Then we come to the personal side and we find that 350,000,000 working days are lost yearly through illness, which includes also non-industrial accidents; and of the 500,000 workers who die each year the death of at least one-half could be saved or their life extended by ten years. Over 250,000,000 working days are lost due to industrial accidents, and strikes cause a loss of over 54,000,000 working days annually.

Now as to resources. Talking recently with two authorities on the subject, I found that from the tree we get 25 per cent. in furniture, 75 per cent.

waste. From the pool we get 25 per cent. in gasoline. In coal there is a waste of 750,000,000 tons yearly; of water power 50,000,000 h.p. yearly go to waste, and 600,000,000,000 cubic feet of natural gas.

Coming to the question of excess capacity, we have a story that is a scandal. I will give you a few samples: Steel plants, 50 per cent. excess capacity; copper and brass, 150 per cent.; copper smelters, 50 per cent.; zinc industry, 125 per cent.; coal mining, 50 per cent.; lumber mills, 200 per cent.; shoe industry, 80 per cent.; printing, 100 per cent.; sugar refining, 100 per cent.; rubber industry, 120 per cent. It is the job of the Cost Accountant and Comptroller to find the reasons and eliminate these troubles.

Take the matter of distribution waste. In 1850 productive effort amounted to 80 per cent. and distributive effort to 20 per cent., while in 1920 we find production only 49.6 per cent. and distribution 50.4 per cent. The ratio has changed from 80/20 to 50/50, showing the extent to which distribution is playing a part, which is a reason why we are giving more and more thought to waste in distribution. While this next point is one that may not interest you from one angle, yet it does from another, because we on this continent must give more time and thought to it.

In the 131 years from 1789 to 1920 the United States Government expended $66,000,000,000, of which $53,000,000,000 (or 78 per cent.) was for wars and military establishment. For the year 1920 Dr. Rosa of the Bureau of Standards made the following analysis of the Federal budget:—

Expenditures relating to past wars	$3,855,000,000—68%
Expenditures for future wars (present military layout)	1,424,000,000—25%
Total for war	$5,279,000,000—93%
Expenditures civil departments	$ 181,000,000— 3%
Expenditures public works	168,000,000— 3%
Expenditures for education and science	57,000,000— 1%
Total for peace	$ 406,000,000— 7%

In that connection the Executive Secretary of the American Engineering Council visited the Old Country with a number of other engineers, and they came back very much perturbed over the relative progress we are making in this country in pure research as well as applied research. That is why I mention this figure. On this continent we have to give thought to cutting out this disease of war so that we will use more of these things, eliminate some of this waste, so that we can give more time and thought to education and science and do away with fear and ignorance. This leads me to the thought, Is there a common ground on which these seemingly conflicting forces can meet? I do not know whether any here remember an article which led to a series that I published some years ago entitled "The Inevitable Antagonism Between Employers and Workers". At that time I sincerely believed it, and I believe yet that there were elements in that article that were sound, due to economic causes and under conditions as we now meet them. But we began to realize that there was one common ground on which they could meet, that is accident prevention. The worker is interested in cutting out accidents. In such mills as those of the United States Steel Corporation there are committees that give that problem serious thought and attention. On those committees, for the first time in the history of the great steel industry, there were workers.

The more I study this great waste problem the more I see that we have a great common ground on which all parties can meet. That will be apparent to you as I give you the motives and aims and objects of each group.

As a capitalist you want regularity of return on your investment as well as adequacy of this return and security of the principal. If you are a workman you want regularity of the pay envelope; there is nothing more interesting to the worker than that he should get 52 pay envelopes a year; he is probably more interested in that than in the contents even. But his interest is also in the well-filled envelope; then in minimum hours and proper working conditions.

Now, coming to the management, which takes the money and the hours and co-ordinates them in making the product; we find he as well as the capitalist wants consistent and regular profits, and uniformity of plant operation, freedom from strikes, and unrestricted production.

On the other hand, if you were representing the public, and you are, we are most of us either workers, managers or capitalists, we want reasonable prices, proper quality, prompt deliveries and adequate service.

I call this the community of interest; it is the one factor on which they can all get together, this factor of waste elimination. I cannot conceive of eliminating waste without helping wages, without making capital more productive, without management being better, and as we eliminate waste we render service and increase the buying power of the public.

Therefore my suggestion to managers is that they give thought to this question of waste elimination and develop a program which will be as much a part of business mechanism as checking the bank balance, watching credits or controlling

material. If I said to you, "Don't bother checking your bank balance any more," you would put me in the first insane asylum. Yet if you say we are not going to study our waste, because there is no sense in eliminating waste, I should feel that you are fit for the same place. For, if there is any logic in watching the bank balance, watching your credits, checking your materials carefully, there is just as much in searching out wastes.

How are we going to do it? It seems to me that the great go-between in industry is the foreman, the supervisional force. You have the almighty sitting in the chair of the manager, but unless the foreman are interpreting properly the ten commandments to the workers do you suppose they know what the almighty wants them to do? I think foremanship is the keystone. I have a client in Boston; I convinced him recently that he should let his foremen in on the mysteries of overhead. For forty years no foreman in that institution had heard a word about burden or overhead, let alone anything about the money side. He said he would take the advice. He called a dinner meeting and had his foremen there and we discussed the mystery of burden. It was an eye-opener to the foremen. The manager was convinced that he ought to get out a simple little statement, such as a Cost Accountant might put out. It is a monthly analysis of burden. It shows the amounts for this month and last month, and the increase or decrease. The first item is Rent; the explanation is: "This is what you would have to pay if you rented your department, as you do a house, plus cost of light and heat. Machinery depreciation: this is the cost of your equipment, as if it was paid for hourly, as labor is, for the life of the equipment. Maintenance: this is the cost of repair labor and repair materials you are charged with, for keeping your department in proper condition to manufacture efficiently. Supervision: this is your proportion of the cost of factory executives directing the business. Service to departments: this is the cost of service to your department, of the office printing, telephone, employment, hospital, liability insurance, and the like, all of which enable you to operate. Indirect materials: materials you have used in your department which cannot readily be identified as entering into a specific product. Indirect labor. Idle time: this represents money lost in your department for time workers who, for whatever reason could not be put on definite tasks. Overtime: This is the amount paid over straight time to those who worked overtime in your department. Power: This is your proportion of the cost of power we had to buy or generate ourselves in order for you to operate your department. Gas, fuel, oil and water: This is the cost of gas, fuel, oil and water you used in your department during the month. Total burden: this is the "load" you must carry in addition to the cost of labor and material charged directly to the products you made, and which must come out of selling price before a profit can be made. So we tie the foremen to the profit. This report will inform you regarding the burden costs you have incurred or which have been apportioned to you. You can cooperate with the management by reducing this burden. Reductions can come in two ways—by a smaller amount expended for an item, or through an increase in the manufacturing units produced per hour of operation.

That has done more to get the foremen on the band wagon for cost reduction than any one thing I have done in a long time in that particular place, because we cleared away the mystery, the ignorance about burden, the fog, and tied it down to the department in question in such a way that the foreman could see exactly what his costs are, what they consist of.

Here is another way to help the foreman. We all know that depreciation is a much-discussed question. I suppose we could start one grand wrangle in this room on that question from the standpoint of theory and practice. I have found that foremen absolutely throw up their hands when you start that subject; they do not know what it means. But I talked to them this way, I said "Supposing you should buy a taxi cab for $3,000; it would run for five years. You pay for gas and oil and garage rent and tires and take your living. At the end of five years you would have a junk pile and your $3,000 had gone. Then suppose, having learned that, you save another $3,000, you say: 'Now this time, seeing that I used that car up in five years, I will take $50 a month and put it in the bank, besides taking my living and paying for gas and oil, etc., then at the end of the five years I will have my $3,000 back." He begins to see it. I said again: "Supposing you were a fine individual; your minister and your doctor and your friends would say you were worth investing in, and some automobile company would let you have an automobile for which you should pay them at the rate of $50 a month plus interest and charges for five years; you would automatically out of your operation of the taxi cab business pay the cost of that car." By these illustrations they got the idea of depreciation into their system and understood what it was.

I illustrated it another way: "Suppose you hire a worker, you pay him hour by hour, but you pay for the machine in advance. Suppose the manufacturer of the machine said, 'You pay for it just like you do labor, so much an hour for the life of the machine.'" So they began to see what depreciation was. Looking at it that way, I showed them that they ought to be just as much interested in the

hours of operation of the machine as if it were a worker.

That comes to the next question, idleness. There are two kinds of excess capacity—over-equipment, which is the economic angle, and the idleness due to mismanagement, loafing, labor stipulations or what not. The Cost Accountant is more and more seeing the importance of statistics of idle time. If I had a factory of my own I would study each piece of equipment and find out the horse power or man power and the cost of that per hour; then I would placard this machine, "This machine replaces ten men and costs so much an hour when it is idle," "This machine does the work of fifty men—one hundred men, etc.," so that the workers and foremen could see what is involved when it stands idle. Certainly no foreman would let one hundred men stand idle three or four hours a day, but a big paper machine equivalent to the work of one hundred men stands idle and they think nothing about it. But if they realize that this machine represents so many men there will be a definite effort to cut down idle time.

Then Rent. I had a foreman come to me once and say, "I want to get more floor space." "What for?" "Well, I have an idea we can increase the capacity of this department and turn out more goods in the same hours." I said, "All right, you know we have part of our costs figured on the basis of floor space; you will have to pay for it. Our costs are based on so many dollars a foot for rent, light, heat, insurance, etc.; therefore it will cost you so many dollars a square foot." He said, "Wait a little while till I look into that." He came back with a scheme of rearranging his department to include more capacity in the space he then had.

Then Maintenance. Plant after plant is giving more thought to what we call Anticipative Inspection. When a train comes in off the run the engine is pretty well looked over. In the coal mines they are very careful to see that the locomotives are kept in good condition so that there will be no trouble in the mines. That same theory of Anticipative Inspection can save a great deal of time by repairing out of working hours, by fixing before something snaps. That helps to decrease the maintenance account.

I have never regretted that I started my working life as a moulder. In the years since, I have seen a great deal of evolution upward from the worker, the foremen, to what we call our modern production control department. Likewise we have seen, I do not know to what extent in the Dominion, a great evolution from the old-time clerical man who was the cost accountant, credit man, bookkeeper, everything else, up to the modern controllership in industry, and with this the next logical step is the Budget, the super-control of business, by which a business visualizes its forward path. You might call it plotting the line from the market analysis through to the shipping platform. One large concern in Boston making mechanical rubber products takes that great vision of the plant, that super-vision, super-control of the business through the controllership and Budget; likewise one great automobile plant in Detroit.

That raises the question of the Budget. The best definition I know of the Budget is that it is a plan of affairs. How many businesses that you know have a comprehensive plan of affairs comparable to the military plan of affairs? Yet when we get down to brass tacks is there any difference between the game of warfare and industrial business, with its speculation, risk, uncertainty? This is particularly illustrated in the insurance business, which is the business of providing against the certainty of uncertainties. Anyone who has to do with business knows that his problem every day in the week is, How can I provide against the uncertainties that are certainly going to come up? The answer now is, By a Budget, a progressive forecast, Budget control. I have coined the definition that "Budgeting is the art of determining and controlling the making of the excess of income over the outgo in business." As I said, I started out from the profit angle. That is all there is to business—outgo and income. We read a great deal about the question of financial relationships. How can we pick a business to pieces from the standpoint of their Balance Sheet and Income Statement over a period of years and localize the trouble? I am amazed at the extent to which it can be done just by studying these statements. There again is where the Cost Accountant comes in. Give time and thought to the Budget.

One of the large internationally-known concerns was facing a receivership; there seemed to be no question but that there was a receivership ahead. Outsiders were called in to see what could be done. The treasurer said to one of these men, "If you feel it is a receivership, we will have the Courts appoint one, but if there is anything to be done to save the business we will try and save it." Financial relationships were studied, a Budget plan developed, a sales analysis made by men travelling the country to find out what the business ought to be able to do. Internal Trend Charts were developed covering ten years by lines of product. These were brought together, and the Sales Department given a Budget of $3,000,000 for the six months. The Sales Department said, "It is physically impossible to sell that, if we do $2,500,000 it would be the best possible." The comeback of the outsiders was, "Either sell $3,000,000 in ways that will have to be worked out in council, or there will be a receivership; there is no alternative." At the end of the six months'

period the sales amounted to $3,266,000. Day by day, week by week, month by month, there was Budget control in graphic form, which everyone interested, in the field and at the office, received, and it got to be a game, "bucking the line" you might call it; that explains why they exceeded the objective. The banks had $1,000,000 of $2,000,000 liquidated, the company to-day is back on its feet and in good shape.

That is only one case showing the importance of Budgeting in business.

The next point is that of looking at the business from the standpoint of profit accounting. That is an important subject. I can give it to you in two ways, or from two sides. Some years ago a sales manager said to me, "There is something wrong with this business; when we are operating at 40 or 50 per cent. capacity the Cost Department gives me estimates that if I used them I could not possibly get any business; the result is I throw them away and use my judgment. At other times when the business is running full capacity they give me figures that would result in prices lower than I could get. There is only one time in the year when I can rely on the cost figures; that is when we are running about normal."

That set me thinking, with the result that we adopted the plan of having an Under-Absorbed and Over-Absorbed account for our burden, standardizing our burden on the basis of 75 to 90 per cent. of capacity.

More recently I got into a situation in which copper and rubber, lead, tin and cotton were the basic materials used, manufacturing insulated wire and cable. You can readily appreciate that any failure to be right on the job in purchasing could easily result in great losses, and, on the other hand, there was the danger of speculating in materials of that kind. The result was this plan was adopted; taking materials into inventory at cost, and work in process at market, and the difference was put through a Purchasing Profit and Loss Account.

I was talking to a banker about the theory I had of having the balance sheet show the manufacturing profit and loss, sales profit and loss, and buying profit and loss. He said, "You will do one of the most constructive things for industry if you can force industry to that kind of statement, because then we can visualize whether a business is dominated by the sales type of mind, or the speculator, or the legitimate manufacturer, or a combination." "Two of these items," he said, "are cycle of years' propositions, and one is yearly." He said, "90 per cent. of operating men do not know whether prices of material go up or down, or whether sales are 50 per cent. or 150 per cent. of capacity." So business men are coming to see the importance of better statements.

There is another factor to be considered, the human side. I have been dealing so far with these other factors, but if you ignore the human side you are not going to make all the profits that should be made. A year ago I conducted a test of what employers thought of their workers. There being ladies present, I cannot tell you what one manufacturer said about his workers. Another called them cattle and he hoped he would not have to go out in the plant more than twice a year. Another said he could not make his workers understand him, they always misunderstood anything he wanted to do. Another said he didn't care a hang what happened to his workers after the whistle blew at night; it made no difference to him as long as they played ball for him in the eight hours they were in the mill. I converted him before I got through, showed him that he did care a good deal, because if a man works eight hours and is outside sixteen it depends what happens during the sixteen what he is during the eight. Then I had a manufacturer tell me, "I run my plant on one word with four letters, 'love.' Every morning for the first fifteen minutes my employees have a prayer service." I thought that was a real plant. But he destroyed the whole effect by saying, "You know I have a policy that if any worker comes to me with a complaint or asks for a raise I fire him. He is criticizing me; I will not have that."

But there was a manufacturer in Cleveland; he had had two strikes; he was "in red," and a third strike was threatening. He had about concluded that he had better go out of business. That night after pleading with his men to stick with him, and they refusing, he thought, I wonder what Christ would have done if He were here in this situation. Thinking it out from that angle and taking counsel from the Prophet Isaiah, he went back next day and called the boys together and said: "Fellows, I am going to turn this business over to you; maybe you can make a better job of it than I have. If you don't want to keep me you can discharge me. I have done the best I can, the business is losing money as you can see.

Well, they did not want to run the business. He said, "Maybe you can show me how to make the profits to make possible the payment of the wages you want, if you want to keep me you can." To-day it is a flourishing business, he is getting more than he ever did; they are all happy and contented.

There are the two extremes. All business is not run on the basis of the first picture nor of the last; the majority are somewhere in between. It has been said that as yet no philosophy or science has been formulated underlying industrial relationships, and what has been done so far in the way of devising mechanisms was in the nature of expedients.

So I say to you that one of the great factors in waste elimination is the human side, because, as I was recently telling an association of manufacturers about this question of waste from the human angle, in the last analysis there has not been a single improvement, from the time men slept in the trees up to the present wonderful beds of metal or wood, that did not come from a thought or idea on the part of a man. You cannot point to any development that did not come from the thinking of men. The iron ore in the ground took human ingenuity to get it out and make it into steel. Therefore, if thinking is fundamental, all time waste is simply the reflex of careless thinking or diseased or unhealthy thinking, or what I would call grouch thinking or hateful thinking, negative thinking, not there because they want it to be there, but because of fear or ignorance or mistreatment.

So that in proportion as you correct wrong thinking and change it to right thinking do you eliminate waste, because the waste in the scrap pile or in paying too much for capital is because we do not think straight.

I had a man tell me, "That is awful highbrow stuff." I do not believe it. I think we all understand that more clearly the more we study human beings. You cannot go to a machine and say, "Please, Mr. Machine, give me more production"; we have to go to to the worker. And the mind of the man goes to work. We do not need to be dominated by our machinery; we can dominate it.

Now Cross-Fertilization. During the war it was our good fortune to study ship-building. We found much work that was wasteful, some was very careless, yet we did get the ships out. One of the means of improvement resorted to was cross-fertilization. By that I mean that instead of studying one yard and gradually improving its efficiency, all the yards were studied to find which had the best rivetting practice and why, and then bring all yards up a little on rivetting. The same thing with bolting-up, the planning loft work, fitting.

Suppose we took twenty plants in this city and found that one plant had the best cost system, another the best planning system, another the best system of rewarding its workers, another the best Budget plan. Suppose each of the nineteen plants could get a little help from the one best feature of each plant and gradually raise its standard, could anything beat those twenty plants?

I am coming back to the Financial Statement. The more time I spend in this great work of cost accounting and industrial engineering, viewed from the angle of waste elimination, the more convinced I am of the need of more complete, more uniform, more standard accounting procedure. I wonder how many of you have read an article by Prof. Wm. Z. Ripley in the September issue of The Atlantic Monthly entitled, "Stop, Look, Listen"? He tears to pieces the practice of corporations in the United States in reference to financial statements, and shows the inability of the individual stockbroker to find out anything about the concern, and the harm that results from that practice. We all know as we study cost accounting that if we can first get our facts, then arrange them properly and then get the information to interpret those facts properly there is no question either from the worker or the employer. I have had no trouble with workers. Once I undertook to study coal miners with a stop watch. The superintendent said, "If you study these miners here with a stop watch they will take you back to New York in a wooden kimona, they won't have a stop watch here." In two weeks I was working with the mine committee men, using a stop watch in studying the work of the coal miners, because I got the thing down to a human basis. I laid the facts on the table and showed them from the angle of their own interests that it was to their advantage to have a stop watch study made, that we were not looking at it from the point of view of extracting as much work as possible, but to see what he could do and help him to do it better. We found one miner in a room shoveling water for three hours in his shift. I got hold of the mine committee men and showed how much time he was losing, and it was corrected.

What is the best way of showing and interpreting facts so that the entire organization acts like a football team? I am going to give you a program that occurs to me from the angle of costs and budgeting and waste elimination, which seems to fit the needs of the day.

First, managerial control, reaching all the broad phases of the business; material, design, equipment, personnel, production costs, sales, and co-ordinating all these factors to a common objective.

Second, production control to reduce waste, refining it down, shortening production time.

Third, production capacity based on study of normal demand.

Fourth, co-ordination of purchasing activities with all the factors of business.

Fifth, production schedules based on study of markets.

Sixth, stabilizing manufacturing to smooth out the peaks and valleys. I might say on that point, thought is being given to the matter of the financing and storage of our basic materials. You can imagine what would happen if our grain elevators and cold storage warehouses were burnt over night, in regard to supply and price of those articles; yet why is it we are only a few weeks ahead in the supply of pig iron, and coke and coal are only stored to a small degree because of the danger of spontaneous combustion, yet engineers can find ways to store

coal and coke? There is no need for the enormous excess capacity that we have in some lines to take care of peak loads. Mr. Hoover is doing a great deal along that line in the United States. Someone has to finance idleness.

Seventh, adequate inspection.

Eighth, maintaining plant and equipment on; "anticipative" basis.

Ninth, establish proper cost and production methods.

Tenth, provide proper financial forecasting and budget control.

Eleventh, adopt methods of wage payment for workers which reward individual accomplishment.

Twelfth, reward foremen and superintendents by methods which cover both individual and overall accomplishment.

Thirteenth, standardization of products, materials and equipment.

Fourteenth, simplification of sizes, varieties and kinds of product.

Fifteenth, development of performance standards as an aid in production control, and as a basis for rewarding workers, foremen and superintendents.

Sixteenth, proper industrial relations.

Seventeenth, proper selection and training of personnel.

Eighteenth, accident prevention and helping to reduce illness and deaths among workers.

Nineteenth, adequate technical research.

Twentieth, have a definite waste elimination program.

In the foreword of the great report on Waste and Industry is this statement, which has a particular bearing on this whole subject of getting back to our financial statement by a different route:

> "The report discloses losses and waste due to the restraint and dissipation of the creative power of those who work in industry. It lays the foundation for knowledge of the destructive influences which have too much controlled in the past. From this knowledge will grow the conviction that mental and moral forces must be added in a much larger degree to the physical resources now employed, if industry is to serve all who are dependent upon its continuous and effective operation."

In closing, I will sum up by saying that in reviewing an experience of 25 years in industry, beginning as a worker, I have seen industry go through four great stages:

1. The machine development period, when we made machines do things.

Then because we got machines going better and men acquired ability to handle them, we came to

2. The labor efficiency period.

I have seen a great machine built that the workmen could not run; it had been made in a laboratory by experts, but when it got into the shop no one could run it. So we had to tone up our workers. Then having got our men and machines co-ordinated, we found the need of better management, so we came to

3. The period of production and management betterment.

Then because we were getting our production capacity so high, distribution suffered, and we had to reach efficiency in distribution, where we are now.

4. The distribution period.

The next great movement before us is to make more effective the use of credit and invested capital. In other words, making the dollar which finances all this process, work faster. There is where the Cost Accountant and Controller become the keystone in the structure, because it is his job to gather, compile, interpret and then to see that, if his convictions are sound and logical and reasonable, he puts his story over and gets the results. And the great implement for that purpose is the Budget.

This is your first convention, and as conventions come and go, I believe you will find more emphasis placed on the importance of the more efficient use of credit and invested capital.

DISCUSSION

THE CHAIRMAN (Mr. Turner): We have been privileged to hear one of the broadest and most lucid expositions of this problem that I have ever listened to.

It would be difficult to pick out any one particular point and say it was of more importance than others, but to my mind the idea that predominated throughout the address was that waste is a human problem. There is a connection there with the idea expressed at the morning session when Professor Michell was expounding the variableness of the economic cycle, and Mr. Jamieson's suggestion that the Professor was overlooking to some extent one line, that instead of looking entirely to physical causes he ought to look to human causes. In the question of waste elimination the human element is evidently the strongest single factor. It is interesting to see that Mr. Knoeppel puts as basic the fact that all our other activities depend on our thinking, if we do not think straight the result is loss. If we have bad thinking along spiritual lines we inevitably have unfortunate results. The human element is the prime factor in industry. In the last analysis all material is labor. Mr. Knoeppel spoke of the fact that in the development of means prevailing for the rest of the human body from the tree age to our present super-sensitive spring mattresses every step was due to some human thought, and that the iron ore in the mine required human thought to bring it forth. In other words

the ore is of no value until labor has been applied to it. That is what I mean by saying that in the last analysis material is labor. I express that because I believe that there is too infrequent connection made between our accounting activities in their daily aspect and economic aspect. The economist takes a different view of loss from the accountant, I do not know but what the accountant will ultimately come to take the economist's view. About a year ago Sir Josiah Stamp urged strongly upon the accounting profession that they should submit their findings and information to statisticians so that they might be made available to the world at large with a view to determining the trend of matters. In other words he thought that the sum total of human experience should be made available for each individual student. Mr. Knoeppel expressed the thought in a somewhat similar way in saying that human thinking is at the root of our problem of waste.

The discussion is open. Someone expressed the idea with regard to the difference between the purchase price of materials and the price at which it entered into manufacture, that that loss or profit should be separated from the general loss or profit in the operation of the business.

MR. WILSON: A remark was made in connection with one company which used copper, rubber and cotton, three commodities which had a wide variation in price. What was the buying policy of such a company, did they show their purchasing losses or gains, was their policy necessarily a speculative one?

MR. KNOEPPEL: No, this company did not want to speculate in materials, they wanted to be safe and to buy in the right market. Therefore their purchasing agent gave a great deal of time and thought to reports and quotations. But obviously, because the business had to sell on the market,—there were five basic materials, copper, lead, tin, rubber and cotton, in order to be safe he watched the markets and bought accordingly. The company has been showing consistent profits due to purchasing, but this was incidental to the operation of the business rather than pursued as an end in itself.

Back in 1920-21 the Goodyear Company lost $18,000,000 on materials and had no reserve against it, the United States Rubber Company had reserves of $12,000,000. Having had some experience with the Goodyear situation I think the tendency there was to speculate, with the United States Rubber Company it was not so much so, they were watching it and providing reserves to cover.

But this particular company, the policy was not to speculate, but they have been making profits because by knowing the losses and profits on that particular phase they have been able to eliminate waste, whereas if it was just profit and loss they could not visualize the results from sales and other angles separately.

MR. JAMIESON: I would like to ask the speaker whether in his experience he has got any results by broadening workers' committees and electing to those committees not merely foremen but some of the general labor staff.

MR. KNOEPPEL: I have seen workers of all kinds on these committees from the most ignorant kind of help to the more than ordinarily intelligent. When it comes down to net results, proving that we are after all the product of our thoughts, I have seen worth while results from both groups from the standpoint of suggestions. A man was saying to me the other day that he could not see anything but what his eyes saw nor credit anything but what his ears heard. I said, You had a mother, hadn't you, you believe there is such a thing as mother love? Yes, certainly. Can you see it? No. I said, all right, here is a plegmatic, dull-witted looking woman, a foreigner say, but when it comes to her mother love it is just as great as that of the well educated woman.

So I have seen and worked myself with workers who did not look as though they had an idea in a million years, yet when it came to something affecting his work or his life or the welfare of his children you could reason with him. It is a question of how you run the committees. If as one employer said he did not intend to let them have much to do with things but he would like to have a committee because he would like to know what they were thinking. I said, Don't put it in, because they will soon wake up to the fact that you are trying to put something over on them.

THE CHAIRMAN: Of the two problems, waste due to management, and waste due to the workers, which do you consider the more difficult to overcome?

MR. KNOEPPEL: The waste due to management, by far. That may surprise you, but that is my experience. One would feel that the management would understand the situation, it does not. For instance I am working with one now, this man is intelligent, he is making money, but he is not making as much as he ought. One thing I find is he has his income tax and interest on borrowed money in his costs, and he said if he was going to pay a dividend on preferred stock he would stick that in too. He inventories his goods at sale value, taking his profit before he gets it. His books are just a jumble.

My problem with him is much more difficult than to show a worker that if he becomes more efficient he will make more money. There is no such thing as over-production. If Mr. Ford believed he could over-produce we would not have as much money. The sewing machine makes it possible to buy a suit for $15.

This man who would not play 50/50 made 40 per cent. profit the year before, and did not want his workers to know it. The point is, if he went at it right he could justify it. I asked him, "Did you make that every year?" "No." We figured up ten years and found that on the average it showed about

10 per cent." I said, "Show that to your workers. Next year you are going to make another 10 to 15 per cent. loss." But he was afraid to let his workers know he made 40 per cent. the year before, for fear they would want a wage increase.

It is more difficult to get management to do things that ought to be done than it is the workers.

THE CHAIRMAN: Referring to the statement that there is no such thing as over-production, what is the position of the coal industry in the United States? It is commonly reported that there are too many coal miners, consequently wage adjustment is very difficult.

MR. KNOEPPEL: I have not studied that, although I have lived as a miner for some time. Yes there is over-production, as you can over-produce anything in certain conditions. But the problem of mining is a problem of transportation and of storage. The operators will not store coal, and they cannot get cars sufficient at peak loads. If they would store coal they could run their mines at a fairly even rate throughout the year and it would be better for everyone concerned. Most of the difficulties of the industry come from the fact that at one time of the year he has to go at twice capacity to make up for the other part.

The difficulties in connection with storing coal can be overcome. Then of course the miners have to work out one feature among themselves, what they call the snow-birds, those who work on the farms in the summer and in the mines in the winter.

But economically, under right control, if we watch our markets we need not over-produce. You cannot over-produce automobiles until everyone in the country has one.

MR. ELBOURNE: I do not feel that I have much to say, but I do not want to let the opportunity pass of acknowledging the inspiration that comes to me from listening to Mr. Knoeppel. It would give away my age if I told you that 25 years ago I was in the States and heard a lecture by Mr. Gantt that served as an inspiration to me for a long time, whether this one will have to last me another 25 years I do not know.

There was a reference made to unabsorbed burden and its treatment. It called to my mind the work of an Englishman who I expect is known to you, Hamilton Church, I just wondered how many members know of his work published in 1901, Production Factors. May I put that as a question to the house?

(On a show of hands the Chairman stated "About half a dozen".)

That only shows that work which is done gets washed over and buried. They are short books and simple to read. I want to be reasonably polite, but it is not right that you as a Society do not know of that work, because though it was written 25 years ago it is advanced thought. A Society that is functioning in the important field you are must not refuse to build on what has gone before. Life is not long enough on that basis.

I would like to make reference to his treatment of material account. It occurred to me in listening to Professor Michell this morning that Cost Accountants should consider that they have to express something that is not money. You have been emphasizing it as the human factor. I was not going to put it on so high a plane as that, but there should be a technique discovered, a practice developed, of recording costs in terms of labor cost, time spent, not only of money expended; of material in terms of quantity used, not only the price. You have the facts and you promptly bury them. We have no means of interpreting cost by a common factor, because prices vary with the years.

MR. MATTHEWS: From the distribution standpoint, when we come to find the cost of an article that we buy in the States, suppose we purchase it at $100, including duty, brokerage, freight; my question is, whereas our purchase price is $100, if we paid c.o.d. for it we could have it for $80, which figure will I enter in my costs?

MR. CLARK: I would say decidedly the laid down cost, on whatever terms it was bought. If you buy on terms at $100 that is your cost, plus freight, duty, etc.

THE CHAIRMAN: You do not believe that, do you Mr. Matthews?

MR. MATTHEWS: I am getting the use of the money and it goes into my costs.

MR. JARDINE: Is it not purely a question of a profit to the Financial Department by taking advantage of cash payment, or loss to that department by not doing so? It has been our policy that cash discount should not be taken into manufacturing cost, the Treasury Department is entitled to that.

There is another point Mr. Knoeppel brought out, Accident Prevention. I know of an accident in a plant about two years ago, it seemed a very simple one, but it became a hospital case for a year at a cost of about $2,000, then a capitalized pension for life amounting to about $6,400, and the case back in the hospital now. No knowing what the ultimate cost will be. But that case has been more valuable to the firm than anything that ever happened. The lesson has been very valuable to them. They have not yet attained the record of an implement firm in Chatham which has now I believe run some sixteen months without a lost time accident but they have made great improvement. That accident woke them up to the danger they were running, it has served as an object lesson in showing up danger points.

THE CHAIRMAN: I am reluctantly obliged to bring the discussion to a close, as there is another paper coming. It is not necessary for me to call for a formal vote of thanks, because yau have shown by your applause your appreciation of the address.

Wage Systems and the Value of Incentives

By W. S. FERGUSON, C.A.
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CHAIRMAN, MR. GEORGE EDWARDS:

I am asked to discuss something in the way of wage systems and the value of incentives to workmen. I do not take that to mean that I am to go into a discussion of these systems in relation to the indirect wages, except incidentally.

Neither am I going into the use of mathematical calculations to any extent, as figures are not interesting to listen to or easy to carry away.

It is significant that the subject of wage payment and that of labor incentives are linked together for our discussion. We know that there is a constant struggle between labor and capital as to the proportion of the result that each is entitled to. I believe we can well have in mind that while there is constant difference to some extent, as to the rightful share of each, any influence that tends to give labor a larger amount, not a larger proportion perhaps, will add to its contentment. And this may be done if we are able to devise a system that will suit the particular operations that we have in hand and give him an incentive to increase his efforts, and receive a reward for doing so.

There are a number of wage systems, each of which has its own advantage, and it is desirable that the Cost Accountant not only understand these from the viewpoint of labor cost but also the conditions under which each can be used to advantage, having in mind the interests of the manufacturer and the incentive to labor. Local conditions will determine which wage system may be best applied. One of these conditions may be the class of labor, for in some cases, we may have a class of labor that cannot comprehend any complicated system, while with a different class of labor, such a system may be the most suitable all around. Another consideration is the amount of saving in the overhead that may be caused through a reduction in the time of operation. In any case it is desirable that a wage system provide the employee a minimum wage and, where possible, enable him to earn a reward for special efficiency.

The fact that we have to consider many conditions will largely account for the number of different systems.

While I am speaking of incentives to the workmen I would like to emphasize as much as possible that while we may look at it from their viewpoint we must have regard to the fact that there are two sides to this question. An incentive to the workman is desirable only when it reacts to the benefit of the manufacturer as well. So we must give consideration to the amount of saving in overhead that may be caused through the saving of time of operation.

DAY OR HOUR RATE SYSTEM.—The original wage system is that under which the workman is paid a certain sum for a certain number of hours' labor or at a rate per hour. It is the one most commonly used perhaps, or at least, one most widely used, largely because of its simplicity. It can be used anywhere for high class work or general help. There are certain classes of labor that have to be employed by the hour or day where time and not quantity is the ruling factor, e.g., engineers, firemen, watchmen, sweepers, etc. The rate will depend on the skill called for and other conditions that affect wage rates generally, such as locality, demand for labor, etc. The disadvantages of this system are chiefly that there is a lack of incentive to effort and it is more difficult to find labor costs since the amount of service rendered in each period of time will not likely correspond closely.

If asked what a man should receive for a certain service, certain factors have to be considered—supply and demand for labor—so that we have to consider all these as well as our own internal affairs in arriving at a rate that might be paid under this method for the service to be rendered. This system has serious disadvantages. I have said it could be applied anywhere, but we will find in the majority of cases that it is applied where we have indirect rather than direct labor. Some of the disadvantages are:—

Lack of incentive to the workman. He is paid so much for a certain time, not so much for a certain amount of work performed. The result is that generally there will be a lack of incentive for him to increase his efforts,—this does not apply to every workman, I am speaking in a general sense. I have had men work for me by the day that I would not be anxious to put on any other system, because these men are conscientious, putting forth their best effort to give the best service possible.

And there are workmen who seeing positions higher up will take that as an incentive and put forth their best efforts, not because of to-day's reward but because of the prospect of promotion in the future.

But speaking generally that system lacks an incentive that would mean that the workman may have a higher return if he will increase his effort.

It is difficult to estimate or find labor cost under the day labor system where it is applied to direct labor, because since time is the measure, and not quantity, there is an uncertainty as to the actual cost, and this is likely to vary from day to day and workman to workman. A man may not perform the same amount of work to-day as he did yesterday, one may not perform the same amount of labor as

the one next to him, even though they are doing the same work. So there is that certain uncertainty about the cost of labor for the service rendered.

The fact that this system has its disadvantages accounts for our looking around to see if we can find something better. And the fact that there are other wage systems that are designed largely for the purpose of getting away from the day rate or hour rate is evidence that the day or hour rate is not entirely satisfactory, especially for direct or productive labor.

Where we have the day or hour rate there will probably be a provision whereby, say time and a half or whatever it may be, is allowed for overtime. This of course relatively increases the cost of productive labor. We might observe that there is a slight tendency to offset that through the fact that the overhead is spread over a greater number of productive hours, so that there will be a slight shading there to help offset the extra cost through overtime.

So we find the first attempt to escape from these disadvantages was the system of **Piecework,** under which payment is made on the basis of the work done.

PIECE-WORK SYSTEM.—Under this system the payment is on the basis of the work done. In fixing the rate the aim should be that it be fair to employer and employee, and an outstanding point to emphasize is that the greatest of care should be taken in fixing the rate which will be determined by trial or past experience as to the cost of an operation. It is not sufficient to find the amount of work that can be done in a certain time through continuous effort, but reasonable allowance must be made for unavoidable delays. If the rate is fair, the employer should not complain if the wages are increased through increased production. The increase in overhead will be slight but there should be a reduced cost per article. The advantages of this system are:

1. Labor cost per article is definitely known.
2. Incentive develops a better type of work.
3. General supervision is less difficult but special inspection of the work is necessary.

It must be seen that each worker is paid for his own work and no more and, if both the hour rate and piece rate are used, they will be kept separate that a piece-worker may not possibly be paid for work done by an hour worker. The Piece-Work System is described by some as a "100% premium plan" because tthe worker receives full benefit if he saves time.

Then we came to what is termed The Differential Piece Rate Plan. Whenever we get one system in operation someone sees where he can just change that to some extent and meet some other condition and perhaps get better results. Probably the differential piece rate system as worked out by F. W. Taylor, who was a pioneer in scientific management, illustrates the general idea of this as well as any. The plan is devised in such a way that the operative who turns out a high output is paid at a higher rate per hour, while the inefficient worker is penalized by a lower wage rate. A sliding scale of rates is fixed, corresponding to the number of pieces made or operations performed per hour. So an operative who turns out say ten pieces an hour may be paid say 5 cents each, but if he turns out 15 pieces an hour he may be paid at the rate of 5½ cents each.

There is an increase in rate of pay corresponding to the increased rate of production. So that the system is highly stimulating to the workman.

It should be noted in connection with that that as the speed increases the cost to the manufacturer of saving on his indirect charges is greater. That is, the higher the efficiency of the workman the more he gives him for the same service, and the more he is paying for what he saves in his overhead charges.

Then we have another that is termed the Halsey Premium System. (Most of these have derived their names from those who originated them.) This is different from the two piecework systems that I have discussed, in that time, and not the number of units, is the basis for calculating the amount earned. Now you see we are getting back, it would appear at first glance, to the hour or day rate system, to the time as a factor instead of quantity. However, if we look into that we find that the conditions are entirely different. The employee is paid a certain premium for part of the value of the time he saves.

Suppose he is paid 40 cents an hour, and is allowed say 50 per cent. of the time he saves, and he performs in fifty hours the work that has been set normally at 60 hours; he would be paid his 40 cents an hour for the 50 hours, and in addition to that he will be paid for ten hours at 20 cents an hour. That is one-half of the time that he has saved. The incentive there is to cut down the time that is required for the operation that he is to perform.

It should be observed there that the manufacturer also earns a premium, or gets a saving, in that of the time saved he pays the worker one-half. There is then a benefit to the manufacturer through increase of the output within the time, and hence cost should be lower.

As the employee is granted his regular day's wages, usually there is a special appeal to him, he has not, generally speaking, anything to lose, he has, generally speaking, something to gain. But here again I emphasize, as I did under the other systems, that the very greatest care must be taken in setting the time limit and seeing that abuse is guarded against. We must be very careful in making our time studies. There is no use telling a workman, "Now we are making time studies to see how long it takes to perform this work," it would likely take a very long time. We must see that we do not err either way, that we get it absolutely fair before we

hand it over to the workmen as a standard under which they are to be paid. We must guard against abuse, on their part, and we must not abuse it on our part, but try to reach a rate for normal efficiency that will represent a fair day's work on the part of the workman.

Then if we follow that system out,—I am not going into the mathematical calculations, it would not be fair to throw a lot of figures at you,—after a certain point in that system a man will not consider it worth while to exert further effort to increase his output, we will find that there is a certain point up to which it is well worth while to endeavor to improve efficiency and increase output, but there will likely be a limit where they will say that the extra effort is greater in proportion than the extra amount that they would receive. That can only be shown by taking definite cases and working them out under various conditions to determine where that point will be.

Then we have another premium system termed The Rowan Premium System, which differs from that of Halsey in that the premium is in proportion to the reduction of time.

If the time allowed is saved by 10 per cent. the rate will be increased 10 per cent. If the time saved is 15 per cent. the increase in the rate would be 15 per cent.

This can be best applied in places where the standard time for operations cannot be made an accurate and definite figure, for no possible error in fixing the time allowance could enable an operator to double his wages. He will always be somewhere within that, even though he is much above normal he cannot double the figure. That is probably the reason for the invention of that particular system as a variation from Halsey's.

Then we have that which is termed the Gantt Task and Bonus System. Under that a high standard is set, that standard will be somewhere above what we might term the normal day's work. It is only after a worker has attained that standard that he is given a bonus, and the bonus will increase as he continues to reduce the time. Instead of a greater rate of increase it is probably most usual to adopt a flat rate, it may be say 40 per cent. added to the hourly rate when the standard is attained. The foreman may be allowed a bonus too. There is an advantage in that. I have seen it work very well indeed, where a foreman finds that if by his supervision he can increase the output he will be given something in the way of a reward, he will become a teacher of his men in order that they may with the least effort increase their deficiency.

This system is generally considered a very good one to apply when leading from day work to piece work in the same firm. The point to be noted there is that if the standard set is well above or somewhere above what we would term the normal output for the time, there is a saving to the employer in the difference between the normal and the standard in both the direct wages and the indirect charges.

Then we come to something that is not in the same sense a method of wage payment, but is closely related to the subject of incentives. I take it I am expected to give a general outline of some of the shading off and differences in wage systems, and to bring out some of the incentives that may be applied to increase efficiency and improve the efforts of the workman.

One system is what is called The Stint System. It is very simple. The employee is not given any more money at all, but when he has completed the work that is assigned to him he may himself have the time that is saved. In other words he may go home. Thus if he is working on a 9-hour day and completes the work assigned to him in 7 hours he is then free.

I have had some experience in the application of that system, and I think it may be generally said that if we adopt it it is wise to set an hour before which the workman may not go home. In other words he may go home at or after a certain time if his work is completed. In that way we prevent straggling, one man going now, then another hurrying up with his work, perhaps at the expense of efficiency, to get away as soon as possible after him.

Fairly closely related to that, and also in a sense to the piecework idea, is what is termed the Contract, where the employee is regarded as a contractor and given a certain time to complete a certain amount of work, and if he saves time on that he is allowed to start on a new contract, so that whatever time he saves on the one is his to apply on the next. If he is able to go above the normal he will accumulate a considerable amount of time, for which of course he is being paid at contract rates.

There are one or two other things that come up in connection with this, that are not wage systems and yet are related to them, and as in the case I have mentioned, very closely related to the idea of incentive. I am rather interested in the subject of incentive, for in my experience in manufacture I have got to know the inner lives of the workers to a great extent and am able to visualize their difficulties, while on the other side it is my business to visualize and overcome the difficulties. I feel that wherever it is possible for us to say, "We will adopt a plan to divide up with you," you will get a spirit of co-operation that probably cannot be obtained otherwise.

I am going to refer first to the profit sharing plan. This perhaps is not a generally adopted plan, sometimes for the very good reason that we have no profits to distribute, or at any rate not sufficient that we feel we can take them out of the business.

It consists in providing for the workmen to share in a certain percentage of the profits of the shop or factory as a whole, or it may be providing for articles being credited to the factory at a certain figure, and the difference between that and the cost distributed. As to how far that distribution goes it is not for me to say. It does not usually go down all the way, but those who are responsible for the conduct of the work will almost invariably come within the compass of that distribution.

It is a very good incentive. I have seen it when I have realized that it is an incentive. I have enjoyed it, and I thought then that it was an incentive, at the end of the year to find that there is a distribution made of a lump sum that you feel comes from nowhere. It has done me good sometimes even though the amount was not large, to see some of the workmen going home with their extra cheque, feeling that it was a recognition that the service that they had rendered during the year was satisfactory, and the management knowing that the incentive given out means that he gets a bigger return for his outlay, and the workman receives more because of his improved effort. It is distributed generally among the men as well as the foremen and perhaps those in certain positions in the office. It is applied generally on the basis of time rate and total pay. It tends to keep labor steady.

It is a very difficult subject to attack, and I am not going to attack it with a view of solving it. A few years ago when there were profits to distribute and a demand for them to be distributed, the question came up. "What will you do if we have a loss, will you contribute to that?" And of course you know the answer. So if any profit distribution plan is adopted we must have three factors in mind; that is the company itself to have a return on its investment, a fair reserve to be built up to protect against lean years, and a workman who in profitable years may receive something in the way of a bonus and as a mark of appreciation of his services.

Closely related to that we have the Stock Distribution Plan, which is adopted by some companies and is intended to give a personal interest of proprietorship to those who are performing the work.

I think that having given this general outline it will be sufficient if I repeat that we cannot tell a person offhand what wage system is going to best meet his needs. We require to know the nature of the business, the nature of the process, and the conditions under which it is operating. When adopting any new wage system we must have regard to the fact that it is intended not only to increase labor efficiency but to give a saving in the distribution of overhead charges. Also, it is intended to encourage the worker, who after all is a co-worker with us, that he may put forth his best efforts, and that we may see him also have a reward for the increased effort he has put forth.

Mr. Chairman, I appreciate the fact that we have here a subject that might lead us into an almost endless discussion. It is one that is very near to everyone who is interested in cost work, either an employer or an employee, and I think it undoubtedly has a very definite bearing on the ever-present problem of the relations between employer and employee, and how the employer may have his interest best served, and how the employee may be given that measure of contentment that alone means efficient service.

DISCUSSION

THE CHAIRMAN (Mr. George Edwards): Mr. Ferguson's address has been very instructive. I willingly confess myself to be still a student and able to add to my store of knowledge on this and other cognate subjects.

Mr. Ferguson has covered a wide range of subjects, and I am sure that a very interesting discussion can be evolved.

MR. FERGUSON: If I add one further remark, it is possible that some of you might wish to see how some of these systems work out, that is to what extent efficiency will need to be increased in order to provide a saving to the manufacturer. I would like to refer you to something that I just happened to pick up among some books, I think in the December 15th last Bulletin of the N.A.C.A., where some of these are worked out mathematically with curves by Prof. Thompson of McGill University, and I would suggest that you turn to that to supplement this discussion.

PROF. THOMPSON: I am the culprit. I perpetrated that pamphlet, and it is very kind of Mr. Ferguson to mention it. There is one system that I would like to call special attention to, that is the Rowan system. If the production increases steadily, picture in your minds a graph, the production will rise by a straight line, a diagonal line. The hourly remuneration increases in a curve, a parabolic curve, it gradually becomes flat.

I mention that system particularly, because in a magazine, I think it is called Administration and Management, a Mr. Barth and others abused the Rowan system because he said it was robbing the workman of his just reward; that as the man's speed of work increased he gradually got less and less in proportion.

But I humbly venture to differ from him. It is all very well to theorize like that when you can have an exact time study, but as we know in practice you often have to deal with jobs with which you have had very little experience, and you have to just estimate them as best you can. The management can just assess the time they think a certain job

ought to take. If they make a very bad blunder and over-estimate the time, as Mr. Ferguson pointed out, in no case can a man get more than twice the wages. It generally turns out that a man gets a very good bonus at, say about 150 per cent. efficiency, that is if he is working about 50 per cent. above normal. If a normal rate for a job is taken and you get a workman who does it in half the time, the probability is that job is badly done, or there is a bad blunder somewhere. I personally think that where you have to introduce a system to make sure that the factory owner is sharing in the saving with the workman, bearing in mind that as the workman's speed increases so the factory overhead charges will increase to a certain extent, and where it is difficult, and in many factories it is difficult to always know exactly what time a job ought to take beforehand, the Rowan system is a good one. One writer said, "If a manufacturer is so stupid as to make a bad blunder in the estimated time for the job he ought to stand the loss." I would not like to tell a manufacturer that. After all, as we all know, there are practical difficulties in estimating beforehand the time of a job in many factories.

Of course there are systems like the Emerson and Taylor and Gantt which can be made use of where the factory manager has no share of the savings but actually pays a little extra in order to save the overhead. You can only introduce these systems where the overhead is at a much higher rate than the workman is being paid.

MR. CRAIG: I should like very much to hear the views of some of these gentlemen present who have practical knowledge of how some of these different systems work out in their own plants. This is one of the many features of Cost Accounting in which my experience is very limited, I have only had occasion, I think, to look into one instance where a labor incentive plan was in full operation, that was a number of years ago at Dijon in France. The system carried on there, and the employer thought a great deal of it, according to his testimony it worked very well, was, I think, different from any of the schemes presented to us by Mr. Ferguson this afternoon; different in this respect, that a time limit, or a quantity limit, I forget which, having been set, and set purposely at a low figure so that the workman might be sure of making a gain on it, the workman got the benefit of all the time he saved, not half, and the employer, when I questioned him as to the advantage of this, explained that if he paid the workman the full value of his time saved, even though he doubled the time, he was making a profit by the extra use he was getting out of his machinery. He explained to me that according to his conception of business he paid the workman so much, and in like way he paid the machines so much, and he looked upon the saving that he was to make on his machine payroll as compensating him for the extra money paid on his work payroll.

I am under the impression that while these different incentives are employed, more or less frequently, in the United States and England they are more rarely to be found in Canada. I should like to know whether that is correct. Many manufacturers in my experience prefer to alternate the daily pay with the straight piecework system.

In dealing with incentives I think there are some objections that may be raised to a number of them. One is that most of them are too complicated. If an incentive system is to be worth anything it should be as clearly understood by the workmen as by the office. I think most of these systems fall down on that point. It is very difficult for the workman to calculate for himself what his pay at the end of the week should be, even though he is fully aware that he has made some gain. He has to accept the statement of the office, and cannot check it himself.

Another objection is that while they stimulate production, which is good, they do not tend to improve quality. Attention is paid to production only, and as long as the quantity is attained with such quality as will pass inspection there is no incentive to the worker to improve the quality of his work. It stresses manual dexterity rather than the worker's intelligence.

While one or other of these systems may be attractive from the point of view of the employer in increasing production, they all seem to me to fall down from the worker's viewpoint, because, I think in the majority of cases, he is less concerned in getting a little more pay one week than getting a fair average wage. What he asks is a fair level combined with the assurance of continuity of employment. It seems to me one of the great objections to all the wage incentive systems is that they do not meet the worker's demand for assurance that his work will go on from day to day and week to week, and that if he gets out an excess of production in one month he will not be laid off the next by reason of his own industry. I do not know of any system which takes up that question of assuring to the worker continuous employment. I should like very much to hear from any of the members present their practical experience in the working out of these different systems.

MR. WILSON (Wilson & Fessenden): In response to Mr. Craig's inquiry may I say our business takes us into this matter of setting wage standards. As to the statement that the workman's viewpoint favors continuity of employment rather than immediate reward, I call to mind an instance of a small factory employing about 35 men in which we set wage standards recently, using two or three types of bonus plans, and those men appreciated very pointedly the fact that if they earned more wages

and at the same time reduced the cost of production, the plant would have a much better chance in competition with larger competitors who were perhaps better equipped with machinery, and consequently they had a better chance of continued employment. Those sentiments were expressed by the men themselves. The result has been that in the last twelve months those very facts have been borne out as far as the company being able to produce its goods at lower cost, they have got greater production and been able to employ their men more fully.

I believe Mr. Ferguson stated that it was not desirable in setting time standards to let the workmen know that a time study was being taken of their work. Is that correct?

MR. FERGUSON: Generally speaking, if we are making time studies for the purpose of fixing a rate I think it is better at the outset not to tell the workmen, as to do so, while they may be perfectly honest, there may be that variation in results owing to the fact that they know they are doing it for a special purpose. I think we would get a better result if we make the tests under supervision but without telling them that we have a particular purpose in view. In other words find what they do under normal conditions.

I do not say that would always apply. I have had experience in cases where I would not mind telling them.

MR. ELBOURNE: I have listened with interest, and it is not for me to say that it is elementary, because Mr. Ferguson deliberately avoided a scientific treatment, as he said. Yet I feel that attention ought to be called to the fact that the science of wage remuneration has gone a long way further than Mr. Ferguson implied. The whole thing is to fix the standard of output. That is hardly summed up, or too vaguely to be acceptable to-day, as a fair day's work, it is a matter of investigation, of relatively elaborate analysis. And I would ask that those of you who are not directly concerned with the control of wages and therefore are apt to take a somewhat superficial view, should fix in your minds that the science of time standards is one that has been demonstrated to be very practical, and that the motive behind the Rowan system that Prof. Thompson referred to is to safeguard against inefficient rate fixing. The progress of the art has been so marked that it is not as necessary to introduce sliding scales of that character when straight piecework might meet the case. In England, for instance,—the Rowan system originated there, and the Halsey system was operated there under the name of the Weir system,—while they still operate to-day piecework is the much more generally accepted method, and the justification of piecework lies in the more nearly scientific measurement of the work to be done. That is by the process of analysis. I would like to elaborate that point, it is of vast interest, but there are many here amply able to develop it.

It is not complicated. Twenty-five years ago I went back from here and installed a bonus system, the Rowan system, and the men knew to a ha'penny what they had to get, and that was a generation ago. But of course it is simpler to have a straight piecework system.

I suggest that this Society would be well advised to take up this subject and pursue it further. There are a whole heap of questions raised to-day that one would like to follow up.

MR. BASSIN: I would like to reply to Mr. Craig's point, that under these incentive plans a workman often did not know what he should get at the end of the week. The first wage system that I came in contact with in Scotland, where I took a humble part as a worker, was a piecework system, and at the end of a week if a workman had not earned by piecework the equivalent of the day rate he was paid the day rate in any case and charged with the amount which he had not earned. If in the following week he earned a bonus he did not get the full amount until he paid off the previous amount charged against him. In that way a man did have an idea what was coming to him, he knew he would get at least the equivalent of the day work rate.

Mr. Ferguson mentioned the case where a workman is considered as a contractor. I came across an amusing instance of that in France during the war. There was a Chinese labor corps, they were paid, I think, one franc a day in cash and another franc a day was credited to them in China. The great game in camp at night was to play fan-tan, and it so happened that one of the members of this corps won a large sum of money from another. They all had to turn out for work the following morning, the loser as well as the winner, but it was amusing to see the result of this particular game. The winner had won more than the other man could pay, and he decided to take the balance in work. So the tasks were divided out, and the loser had to take both his own task and that of the winner, while the other man walked up and down and took the part of a contractor.

DINNER SPEECHES

MR. HENRY T. JAMIESON, F.C.A., speaking at the dinner on the first day of the Convention, said:

In giving my brief message I refer again to the paper of Prof. Michell, and attempt some slight amplification of the remarks I made on the subject of his address.

It was on the question of boom and depressions. He ably and completely placed before us an analysis of the conditions surrounding these phenomena. He put before us in a masterly fashion the problem of

what causes them. That problem no doubt we will carry around with us throughout the course of our existence in this world, but there is no reason why we should not attempt to get a little nearer to the truth as to the cause of the disease which seems to exist.

I think the condition of economic depression largely results from the human element, from which we human beings can never hope to escape. If I may repeat the premises of my remarks earlier in the day, I think these conditions of boom and subsequent depression are largely caused by some need that may perhaps unexpectedly develop. That need may be regional, national or international in its scope. Some new demand is created and immediately there springs up a desire on the part of a majority of individuals to profit by that public need, they see their opportunity of making that thing in order to profit, the idea of service is perhaps laid aside, and you see the pitiable spectacle of great numbers of men rushing pellmell to grab a share of the dividend that appears available. However we sympathise with them in that, because we all do it. One is not altogether to blame, because he is taught to make money and it is necessary that he should solidify himself by doing so, because after all can an individual be of any service to the State unless he first makes himself complete physically, mentally and spiritually,—as complete as he can? However he is perhaps apt to pay too much attention to the first of those three requisites, and so the unholy race begins. Unfortunately each competes with the other, endeavours to get there first, and not merely that but perhaps to prevent the other fellow getting there at all. In the competition over-expansion takes place with all its evils. Heavy stocks appear, and in the end there comes the inevitable reaction, all of which is due largely to that quality of greed and selfishness.

Ignorance also plays a large part. The business world needs some governing and guiding machinery. It has had at its disposal the machinery of banking, an excellent machine, one which we cannot do without, but it is a question whether that machine is sufficient for the needs of the present day. A banker does not get, cannot get, information concerning business to-day or to-morrow, he gets it after the stable door has been opened and the horse stolen usually. However skilful he may be in getting knowledge of the particular businesses that he is looking after, he cannot expect to keep in as close touch with them as is necessary to their health. Therefore I think we must look for some new machinery in this age of complex business conditions.

It was therefore for that reason that I suggested that all the analyses that we make, the investigations, the findings of the different individual businesses and plants and industries as a whole, should be saved and from them something built up, reducing to useful form all the facts and data that have been gathered as the result of the analyses that individual businesses have conducted.

In setting up machinery we must be careful not to do anything which would destroy the mainspring, that is individual initiative and enterprise. With that in mind it may be suggested that industries as a whole should go much farther than they yet have in setting up some bureaux or councils or committees within which the individual businesses would exchange data and information and so be able to eliminate many of their crudities, angularities and mistakes, and incidentally keep a closer grip on the total sales volume that the country as a whole can be expected to absorb. The great trouble is, as we heard to-day, that during a boom period there is so much more goods made than can be consumed. Well I now perhaps come to the conclusion of my reasoning; that this Canadian Society of Cost Accountants is the logical instrument by which many of these industrial groups can be develop[illegible], perhaps brought into existence.

It is with that picture in my mind that for the past two or three years I have been happy in devoting myself to the interests of this Society, one which teaches that the accountants are in business to help themselves and not lean upon others, to become pillars of their own particular institution, not merely customers of a United Light Company, that is professionally speaking.

Before I sit down I would say that I am indeed happy that the Board of this Canadian Society has decided to stand completely on its own legs. We are very much indebted to the National Association of New York in that they have for so long given us their assistance and valuable data. But I think that the time has come when we must, if we are to exist in the form that we should, stand upon our own feet. There is every reason why we should do so. We have ourselves the best knowledge of our conditions, and we must inevitably be moulded by and in turn must mould the conditions in which we work, and we must bring ourselves to bear upon these conditions as we find them. It is an idea which I could not possibly accept that a Canadian Society, such an important instrument as this Canadian Society of Cost Accountants, should receive its sustenance intellectually from another country. I have always believed that Canada must be possessed of the instruments necessary to her complete development, and this Society is one very important and necessary instrument to that end. That does not mean that we cease to ally ourselves with the National Association. On the other hand it means, in my opinion, that we shall more closely and in a more real manner be able to do so, because we will now be possessed of a complete body, our head our hands and our legs, and being a complete organiza-

tion it stands to reason that as a sister society we shall be very much better able to co-operate with the National Institution.

THE PRESIDENT: Our ideas of business are not ready made, they grow out of years of reflection and experience. To be worth anything they must be part of ourselves.

For those of us who are on the older side, I think most of our thinking has been pre-war, and our experience pre-war. We had ideas formed from that experience, then came the war and everything was changed. After the war theories and ideas which had before seemed sound, irrefutable indeed, have been found to be no longer so sure, or if sound no longer applicable to the changed conditions of the time.

Now the war is past and we are slowly recovering from its aftermath. We have passed through the hectic times of 1919 and early 1920, through the slump of 1920 and 1921, and are experiencing now a revival of trade conditions. We have to adjust ourselves. Even in good times we do not go back to pre-war conditions. We are coming back to a changed world, perhaps it is material things that have changed, perhaps we have changed, but the world we are entering upon now is not the same world that we knew and in which our theories of life and business were formed before the war. We must recognize that we are entering upon a new era and be prepared to adopt ourselves to it. We must recognize that old things have passed away and our ideas of business, our theories of social and political life have to be adapted to the day that is ours, the coming day, rather than the days that have passed.

These are matters that are beyond dispute. We require in our theories of cost accounting and of business administration to recognize that we are entering a world different from that in which many of us gained our experience. Therefore we look to Sir Joseph Flavelle to give us some idea of what the future has in store.

Constructive Co-Operation in Business Administration

By SIR JOSEPH FLAVELLE, Bart.

MR. CHAIRMAN AND GENTLEMEN,

"I will not attempt to fill the large order that this fine old Tory gives me. I have no idea what his professed politics are, but he is the very embodiment of Toryism in that his wide experience leads him to say that all old things have passed and new things are to the fore, and I am to tell you what these new things are."

IN all parts of the world there are men, individually and in classes, who do not consider co-operative effort an effective instrument for daily use in human relationships. Rather, they choose to stand for their own rights as they interpret them, and to let others stand for theirs. They do not shrink from conflict as they believe recognition of one's rights will come through manoeuvring others into a disadvantageous position, when they can exact from them a settlement more favourable to themselves. I do not question their motives. I but refer to them because if any here hold this view, you must put up with my address with the best grace possible. It should be incredible that in the production of coal, the life-blood of industrial activities in Great Britain, the men directly concerned—owners and workers—have no desire for co-operative effort. And the tragedy is that even in the face of the present calamitous conditions for both parties concerned, and for the public, these owners and workpeople cannot, if they would, off-hand adopt co-operative methods, as they have no effective means of communication, for during these years they have failed to learn the language, or to become possessed of the spirit through which co-operative action is interpreted.

The purpose to co-operate with other men is a definite committal to such a course in a man's own thinking. Its exercise will be established only in the world in which men live—not in some fancied world they conjure. Co-operation is a principle in human relations which cannot be taken on to serve selfish ends and dropped when some other plan will better serve selfish ends. In its very nature it embodies elements of unselfishness, and does not lend itself to tricky conduct. It carries with it the implication of mutual benefit to the co-operating bodies. Men cannot hope to work under the name of co-operation and one of the parties claim the chief advantage. It may be, and is effectively practised in all phases of life as a practical method in securing mutual advantage and profit. Yet the co-operative spirit which bids mountains be removed and cast into the sea, is an inward grace which grows in contemplation of the second of the two great Commandments—"Thou shall love thy neighbour as thyself."

You will remember the story told of Turner—a critic of one of his colour studies showing wonderful sunset effects remarked—"I never saw a sunset like that, or any such colour in a sunset." Turner,

who was nearby, replied—"My dear man, I am sure you never did."

When I was a boy, I won a book as a prize. I came across it the other day, hidden among other books. On the flyleaf was inscribed these words:

"Thou must be true thyself
If thou the truth wouldst teach;
Thy heart must overflow
If thou another heart wouldst reach."

This is not a pious platitude for women and children. It expresses an inescapable law for red-blooded men, and is applicable to all human relationships. Turner's critic had not cultivated a sense of colour in his heart, hence could not, with his eyes, see what was revealed to the great artist.

Two young British engineers were interested in seeking to understand why higher wages in the United States than in Great Britain should be associated with a lower cost of the commodities produced. Hence they visited the great Republic during the months of October, November and December of last year, that they might at first-hand secure an understanding of industrial operations in that country, and also an adequate explanation of the phenomenon of lower costs in production being associated with higher wages to the worker. They have recorded their experience in a little book—"The Secret of High Wages," which has commanded wide-spread attention in England. If you read it critically, you will question some of the conclusions, but if you are sympathetic you will find the meat of the book in the discovery, to their own belief at least, that whether by accident or design, owner and workman in the United States are in co-operation, whereby the one secures higher wages accompanied by greater production, and the other an enlarged business and greater profits. That is to say, the employer has encouraged his workman by higher wages; the workman thus encouraged has increased his daily production of the needed commodity; the commodity has been sold in increased quantities because it is lower in price, and in consequence of these co-operative relations, employer, workman and consumer have shared in the benefits. It should not occasion surprise that employers and work-people engaged in an enterprise should assume that they have interests in common. It should occasion surprise that so frequently these two classes, each dependent upon the enterprise, are in conflict, or each on guard, watching the other. We may fairly ask, why should we expect economy of operations, lower cost, higher wages, increased volume and better profits, if the relations are to be of conflict in place of co-operation? These two young engineers brought home the message to British manufacturers from the United States practice: "The determining factor in wages which you will pay is not in the comparison of the relative cost of living with a pre-war cost, but in co-operative effort with your work-people, to whom you will pay higher wages, secure increased production, establish increased buying by the consumer through lower cost, and out of it all, mutual advantage to the three parties concerned." It is interesting to remember—and it seems only the other day—the continent was surprised by the declaration of Henry Ford that he would make $5.00 per day a minimum wage for his work-people. At the same time he advised his executive: "We will reduce the price of the Ford car, and will continue to use the best material. It is for you to discover how, by increased skill in manufacture, increased effectiveness of plant, increased output per workman, you will secure a satisfactory return in the sale of an increased quantity of cars at the lower price." Perhaps we are all awakening to the consciousness that Henry Ford has been a courageous pioneer and constructive force in the payment of higher wages accompanied by reduced cost in production.

May I remind you that the human factor is the all-important factor in our activities, whether in educational institutions, in churches, in politics, in industrial plants or in finance and commerce. The chief factor is men, always men, but strange as it may appear, it is frequently the least considered. Those of us who are executives are presented with all sorts of demands; more buildings, more equipment, additional facilities for display, wider markets,—but only on rare occasions are we asked to consider the human element in our operations. Yet they are the key to which open all doors. What will we do with these humans who are with us in our enterprises—treat them as chattels, to work at will, discard at will, or as comrades in service, for fair understanding and fair co-operative effort?

I desire to bring to your attention to-night some suggestions growing out of proved experience in constructive co-operation in business administration, in the hope that you may find them useful in the counsels of the various corporations or enterprises with which you are associated. In considering the operation of the businesses in which you are employed, or in which you serve as principals, may I suggest a question. Do your administrative officers definitely plan and record in advance of the new year what they hope will be accomplished during the year? Upon reflection you will know that whether such attention is given or not, something will happen between the first of the business year and its close, and what happens will be reflected in the health of the business, and in the annual Profit and Loss Sheet. You should diligently enquire whether the health of the business, and the character of the Profit and Loss Sheet, can be bettered, if in advance of what happens you plan for the happening, and after the happening begins, you plan to ascertain as early

as possible and at stated intervals how the actual results compare with the hoped-for results which you recorded in advance. I have proved the value of thus planning months before the beginning of the new year, and setting out in order form and considerable detail, the judgment of operating officers as to what can be accomplished. In determining to follow such a course, the method will differ according to the character of the enterprise; in industrial corporations or distributing agencies you will have regard for the inventories you will carry, their suitability to the business which you hope to do; your methods for the clearing out of unsatisfactory or unsuitable materials, product or merchandise. You will determine the volume of business which you will aim to secure; the operating costs you hope to establish; the profits you will make, and the many things which day to day are carried on, whether you think about them in advance or not, and which I know are bettered to an extent that is surprising if thought is put upon them in advance of actual operation, and if the Department of Accounts furnishes administrative officers with actual results obtained in contrast to those which were predicated. Who will put this thought upon the work? The men who are associated with it—responsible managers, responsible heads of departments, who in turn consult with those immediately associated with them, and always the Chief in Accounts. The result of such consideration can be wisely used as a forecast, an objective, or a budget—the name is unimportant.

Then follows the execution. The records of the company as transcribed in the books, and furnished by the Chief Accountant to responsible officers, will enable them to check after the commencement of the operations of the new year the progress which is actually being made in contrast to the progress which has been forecast. In some businesses these records will throw up results in the first day; others in the first week; the balance, at such intervals as the character of the business naturally suggests. It will be learned in this checking system that the time to stimulate men to better effort is while the effort is in progress, and that the time to correct errors in operation is while the operation is being carried on. It is remarkable what constructive measures develop when managers, heads of departments, Chief of Accounts, and work-people in co-operation are confronted at recurring intervals with actual results in contrast to budgeted results.

A cardinal thing to learn is that the remedy for disappointing results is chiefly in your own hands. I know there are many things which affect results, over which management has no direct control, but you can afford to give them but moderate attention, as you cannot be influential in their correction. The thing you can do well is that which lies within your own province. If you determine to do your job well and continuously, and if those associated with you do their job well and continuously, you will establish results which will surprise you, and you will find it unnecessary to bother much about matters which are not directly under your own control.

The Accountant's records in co-operative service as indicated should furnish from the regular balanced statements the needed particulars to afford authoritative checking of the operations of the business in contrast to the budget. There is danger of undue rigidity in established accounting systems, and a disinclination on the part of accounting officers to accommodate themselves to changed methods of administration. They may indeed become critical observers rather than co-operative associates. I would have you encourage flexibility in your accounting methods, that they may always be a working force in the planning of well-done business. Let me illustrate. I have a friend who is senior in a business in a biggish and profitable way. In common with other corporations, his business fell into trying times in the year following the War. Aided by a very excellent office staff, he instituted a searching investigation into the character of his operations. Before he and his associates were finished with their work, they had reduced their annual charges by $250,000, while a constructive direction of operations led to an increased volume of business. You will appreciate the character of his records when I tell you he has a weekly Profit and Loss Sheet of the entire business, broken into forty departments and including numerous out-of-town branches, and that during the past two years his monthly Balance Sheet has been invariably handed to him on the first working day succeeding the close of the month. Among other plans which this excellently administered business has worked out, is one in which each day's work in the office is to be done during the day. A stern observance of this rule enables a complete review of the previous month's operations to be in the hands of the directing officers upon the first working day of the new month. Hence, the value to be secured from the experience of the month's operations, and I count it of great value, is available on the first day of the succeding month. I give you this illustration in a business with which I have no connection, that you may appreciate the potential service that a body of fine-spirited men can render if they share fully in constructive co-operative effort, and in a common desire to discharge their full individual responsibilities.

The Prime Minister of Great Britain, the Right Hon. Stanley Baldwin, made the following statements during the past two years:

"Humanize the system of limited liability—that is an extraordinary difficult thing to do. After all,

let us remember publicity. Where there is ignorance there is always suspicion, and until you on your side, and I will say we on our side, get the men who work for us to understand our problems as they do not understand them to-day, we cannot hope for progress."

"Four words of one syllable each are words which contain salvation for this country and for the whole world, and they are Faith, Hope, Love and Work. No government in this country to-day which has not faith in the people, hope in the future, love for its fellowmen, and which will not work, and work, and work, will never bring this country through to better days and better times, or will ever bring Europe through, or the world through."

May I commend these four one-syllable words, as being capable of great service for constructive co-operation between the men who are the working forces in the various corporations with which you are associated.

Impressions of the Convention

LORENZO BELANGER, VICE-PRESIDENT

Elle fut la nôtre et bien canadienne. Le 30 Août dernier la Canadian Society of Cost Accountants mit fin à son affiliation à la National Association of Cost Accountants des Etats Unis, et sa première manifestation fut cette convention tenue à Toronto les 9 et 10 septembre. Ce fut un succès.

Le programme, publié ailleurs, n'était pas surchargé d'amusements, réceptions, etc. Son caractère sévère plut aux studieux qui prirent part à la convention. Les conférenciers étainent compétents et l'auditoire attentif et intéressé. L'aridité des sujets traités et les vives discussions ne diminuèrent en rien la franche cordialité et la bonne camaraderie qui ne cessa de régner entre les membres.

Pour plusieurs qui n'étaient pas là, LA SCIENCE DES AFFAIRES est inconnue, pour d'autres, c'est un terme presqu'inutile de notre langue. A ceux-ci comme à ceux-là nous demandons de jeter un coup d'oeil, d'abord sur nos grandes industries, nos utilités publiques et nos entreprises commerciales; ensuite, au sud de la ligne 45e et de se demander si tout cela peut se développer de nos jours autrement que sur une base scientifique.

Sir Joseph Flavelle, au cours d'une causerie, a accentué le fait que dans toutes les entreprises modernes où la machine joue un rôle si important, il ne faut pas oublier que l'existence et le mouvement de cette machine sont subordonnés à la puissance de la pensée humaine.

L'esprit qui gouverne le monde des affaires doit précéder les développements et il ne peut le faire qu'en étant un étudiant perpétuel.

Un des orateurs du diner de clôture rappela ses derniers jours de collège, alors que les professeurs disaient aux élèves: "Ne croyez pas en quittant cette maison que vous êtes de grands savants, notre seul, but a été de vous enseigner à *apprendre* et vous aurez toute votre vie pour cela."

Il m'a semblé que c'était bien l'esprit qui réunissait là les membres de la convention, qui quoique déjà avançés dans leurs études et ayant à leur crédit la solution de maints problèmes, cherchent à monter toujours plus haut. Un des conférenciers disait que l'étude du prix de revient est une forme de la recherche de la vérité. Parole qui vaut d'être retenue.

Un des buts de la Canadian Society of Cost Accountants est de développer et d'encourager dans le commerce et l'industrie une plus grande connaissance de l'utilité pratique des méthodes modernes de contrôle du prix de revient. Il est particulièrement intéressant pour tout homme d'affaires qui désire, non seulement connaitre son prix de revient, mais savoir aussi, que son compétiteur ne fait pas d'erreur. Il n'y a pas de compétiteur plus dangereux que celui qui n'a aucune idée de son coût de production.

La Canadian Society of Cost Accountants admet tous ceux qui sont intéressés au développement rationnel des affaires. Ses réunions, ses publications, sa bibliothèque, son service de renseignements et ses discussions permettent à tous les membres de prendre contact entre eux. La société a déjà démontré son utilité. Les sommités de la finance et de l'industrie admettent son rôle nécessaire à l'économie du pays.

Le commerce de chaque pays a ses problèmes. Ceux du Canada diffèrent de ceux de la Grande Bretagne et ne se retrouvent pas aux Etats Unis. Adaptée aux besoins et à la mentalité de notre pays, la Canadian Society of Cost Accountants a un rôle à remplir dans le cycle des affaires et aussi dans le pròqrès et l'avancement des connaissances humaines.

La 2e convention aura lieu à Montréal l'an prochain. Notre province devrait y être largement représentée. A la convention de Toronto, il n'y avait qu'un seul canadien français.

BY JAMES TURNER

In the history of our Society three outstanding events fitly signify its being. The first of these was the very auspicious inauguration of the Society when a group of Accountants met in Toronto and called upon the late Prof. Lee Nicholson to expound the principles underlying the formation of a Society for the study and advancement of Cost Accounting. The second significant event in the life of the Society was the meeting called by the President in 1923 to promulgate the formation of Chapters to allow of the open discussions for which mainly the Society same into existence. That marked the beginning of the Society's development, and that development has been directed and moulded by the forces and tendencies inherent in the membership itself.

In the intervening years since the first Chapter meeting we have been finding ourselves and discovering the line along which we would go, until now, when in its third and crowning celebration, the Society reveals a scope and horizon far o'ereaching the most ambitious thought of its founders. The first Convention of The Canadian Society of Cost Accountants was a success, an inspiration and a promise.

J.T.

BY J. E. CARRUTHERS

I attended the convention on both dates, and was particularly impressed with the dignity with which the meetings were conducted and the wide scope which was covered by the subjects presented in the technical papers.

I feel that we should hold these conventions annually, and whenever they are held in Toronto, we should endeavour to meet in Hart House where the facilities for handling a convention and the co-operation which the University authorities gave us has already been proved.

I do not wish to go into all the details of the convention, all of which, including the lunch and dinner arrangements, were admirably conducted.

J.E.C.

R. R. THOMPSON, *McGill University*

The First Annual Convention of the C. S. C. A. presages well for the future I came away with the conviction that we have followed the only wise course in deciding to stand on our own legs, and that in future we will be able to do great things for Canadian Cost Accounting, not only in drawing on the best literature of all countries, but in extending the lecturing and other means of education to the manufacturing centres, which are developing so rapidly throughout the Dominion. The papers given were well thought out, and were followed by vigorous discussions. The exhibition of office appliances was most illuminating. Hart House, which the University of Toronto opened to us, is a most beautiful building, and worthy of that great institution. On every side were good fellowship—bonne camaraderie—as one of our Quebec directors most aptly described it, and high spirits, and through and over it all were the directing minds, general influence of our President and the Reception Committee. Cost Accounting can and will do much to help forward the industrial development of Canada, on which so much depends, positions with prospects for young Canadians so that they will stay here, work for British settlers, ready trained for it, and home markets for our farmers. Next year we hope to have our bonne entente in Montreal, Quebec.

R.R.T.

A. BERTRAM GREEN

The first and strongest impression I received was that I was assisting at the rebirth, or at least the rejuvenation, of our Society. It was the first organized attempt at propaganda, the first effort to enable the Society to fill its proper place in the Industrial World, and to merit the attention and respect of the community. The President and the Executive of the Society are to be congratulated both upon their courage in planning such an undertaking, and upon the success that has rewarded their efforts.

For there is no doubt that the Convention was a success in every respect. The surroundings were delightful, the quality of the papers very high, the exhibits were instructive, and even the attendance, when all conditions were taken into account, was satisfactory.

Those present seemed unanimous in desiring that the Convention become an annual affair, perhaps in connection with the annual meeting of the Society. In future Conventions there will be more time to prepare the details and to give it even wider publicity, there will be a greater choice of dates, and the attendance will undoubtedly be swelled, and the number of exhibitors increased.

A.B.G.

REVIEW OF CONVENTION

By H. T. Jamieson

ONE feels, on looking back upon the First Annual Convention of the Canadian Society of Cost Accountants, that one failed and could not hope to grasp the many impressions that rushed upon one during those two days in which our Society first breathed its individual freedom and set itself with

broad outlook to the service of upbuilding and developing the sinews of our country.

That then is my first picture—a great and new addition to the economic machinery of Canada enabling the true impression and expression of those ideas peculiar to the soil and circumstance of our land and thus a stable and more self-reliant economic structure, by which will arise a stronger, more disciplined and prosperous people, completely organized, co-operating and serving as a strong able unit in the world of nations. And so will it be with our Society itself. In its strong life it will find opportunity not merely for the spreading of wisdom and knowledge throughout the whole range of our industrial and commercial structure, but of service in co-operation with others, particularly with our Sister Society in the country south of us and to whom we owe so much for kindly guidance and assistance during the period of our formation.

Secondly, it seemed that the many views and ideas of usefulness were flashed before us like lights, some strong and compelling, some lesser in brilliance but equally insistent.

Lastly, as one looked upon the hundreds of members going and coming, contributing here, receiving there, one could see the individual in willing self-surrender to the larger mouldings of common ideas and general purposes.

And these chance impressions have a connection, the first to the body and substance of our Society, the second to its outlook, and the third to the restless creative spirit that possesses and vitalises the former two. And what of the friendships formed, true binding links, elastic but yet enduring, more firmly weaving the fabric of this young Society.

The President well deserves the thanks so fully accorded to him for the very complete programme and particularly for the new and valuable services to be placed at our disposal, services fitted to our peculiar needs and such as only a Canadian Cost Accountant is able to appreciate and supply. It is to be hoped all of his proposals will be again conveyed to us, and at length, in our journal.

The opening address by Sir Hugh Poynter, our esteemed and good friend, was a master exhortation and encouragement, rich in meaning, sound in its practical common sense advice and broad in its vision of our true usefulness. Sir Hugh strongly endorsed the action of the Board in deciding to carve out an independent career.

As to the addresses, it is impossible to convey in a few words a fair indication of their constructive value and usefulness. One heard Professor Michell in his address on the "Economic Cycle" rescue a much hacked and hackneyed subject and vitalize it until it became a real, alive and throbbing problem. One felt, as one listened to Mr. R. L. Wright, that he personally embodied the principles of efficient administration and production, which he so ably expounded. When Mr. C. E. Knoeppel of Boston addressed us we saw Waste in all its ugliness and its many devouring mouths; we saw the vast underground of error into which we must mine deep down for savings—for profits. We were impressed with his plea for honest work and for the "cross-fertilisation" of facts and knowledge and with his statement that only by service can we profit. Then when one heard Mr. Ferguson one saw the influence, direct and indirect, which the practice of fair wage incentives would have upon business and the workers. Co-operation and again co-operation, in all its depth and breadth of meaning, was the theme of Sir Joseph Flavelle's inspiring dinner address. How to win goodwill with effort and the resultant benefits to all was made clear and simple. It was the old human gospel. An employee has a hand. a head, a heart. Sr Joseph advised us to use all three. One saw the Cost Accountant as the trobbing centre of the Intelligence Department of the business, always fluid and flexible, adjusting himself to changing needs and conditions of the business, and in conclusion one felt and saw how one could indeed "humanize the system of limited liability."

On Friday morning, listening to Professor R. R. Thompson of McGill University, we realized that the scene had changed and we were given a glimpse of what is necessary to build up Canada financially and particularly our export trade. Then the scene again changed as we listened to Mr. Wm. C. Parsons, Executive Secretary of the Toronto Typothetae and we saw the great benefits of co-operation by an industry as such.

At the luncheon on Friday we heard from Mr. C. E. Knoeppel how a comptroller could function and were given by him a picture of the benefits of affiliation with the various industrial societies of England, the United States and Canada. When listening to Dr. McLeod, who preceded him, we hoped that such co-operation would indeed be possible and particularly did we do so when hearing from Mr. Elbourne, of London, England, who strongly supported Mr. Knoeppel's plea. As Mr. Elbourne spoke, one felt that such men as he would encourage "the ethical intention to get at the truth" which he felt was in evidence in America and "which would have great moral value in the improvement of the world." As one heard the splendidly delivered and most able address by Mr. W. B. Castenholz on Friday afternoon, and the searching and vigorous discussion which followed, during which the contra side of the argument was presented, one realized that the subject of distributing, selling and administrative expense was still a thorny problem and its correct solution by Cost Accountants in general would greatly accelerate the progress of their profession.

Listening to Mr. Elbourne, during the last technical session of the Convention, one realized that continually one must be prepared to wrestle with the clarification of principles, the definition of problems and with questions of scope and exactness, also that without correct teminology we, as a profession, could not hope to reach and convey our ideas to the other professions and the industrial world in general and that, as he said, terminology is the classification of knowledge.

At the concluding banquet Sir Robert Falconer's brilliant address was a fitting end to a great convention. One saw more clearly the University as a profound influence, moulding human material and pointing it for and towards its greatest usefulness. In short, developing and directing aptitudes by wise appeal to the stores of knowledge to be found in the past and by encouragement towards the visions to be seen in the future. And one saw, as he spoke, Canada growing from infancy to young manhood, the Universities always changing to meet the new conditions and needs of the people; and we saw the comparative advantage of the man trained not merely in the technical but in the theoretical and disciplinary and that indeed he would, in the problems facing him, find his feet and blaze his own trail. Moreover, we felt that as we educate our own people for our own social needs and environment, the more shall we keep them in our own country.

In conclusion, we listened to addresses of goodwill by the Consul for Cuba, Senor C. A. Fernandez y Barranco, the Rev. Stuart Parker, and our Vice-President, Mr. Belanger. As in happy vein, they voiced their appreciations, one realized how very much we were indebted to our President, Mr. John Craig, for the convention so ably planned and conducted by him, and that to him all honour and our best thanks were indeed due.

Our Exhibitors

In the Reading Room were shown a number of exhibits very interesting to those who seek the best means of saving labor and reducing cost.

The Wahl Company, Limited, of Toronto, manufacturers of the world-famous "Eversharp" pencils and "Wahl" pens, exhibited a full range of their products. Included in the exhibit, which was in itself a striking and well-ordered display, were samples of the newly introduced pen desk sets, in which a fountain pen is set on a ball-swivel on plate glass or marble base. These sets are of beautiful appearance and constitute the latest word in "desk efficiency."

Copeland-Chatterson, Ltd., prepared a very fine exhibit which excited much interest. Various forms of their new building devices were demonstrated. Their fibre covers and exposed metal hinge construction proved interesting. The visible records equipment, most flexible in its application, giving maximum efficiency at minimum cost, attracted much attention.

In the West Common Room were some very notable exhibits:

The Stromberg Time Recording Company of Canada, Limited, 146 King Street West, Toronto, exhibited a Stromberg System consisting of a self-winding master clock.

The secondary instruments may consist of any number of a combination as follows:

Time recorders, for cost keeping, employees' in-and-out recorders, time stamps, secondary wall clocks for observing time, and programme instruments for controlling whistles or other form of starting and dismissal signals.

Powers' mechanical accounting machines accomplish the transcription of original data to compact unit cards by means of perforations. The punch cards become the medium from which numerous segregations and tabulated summaries are made. The flexibility of the system permits the use of the same group of cards for various reports, all of which can be controlled with each other.

Here also the new model ten Dictaphone was demonstrated by the Dictaphone Sales Corporation, Limited, 33 Melinda Street, Toronto.

This new model features many remarkable improvements—featherweight amplifying mouthpiece, super-sensitive-natural-voice recorder, improved pedestal, etc.

On the new transcribing machine "the dictaphone voice repeater key" was shown (typewriter backspacer). This feature was very interesting to many visitors at the convention.

Among the exhibits which attracted considerable attention was that of the Kardex Visible Records.

Positive record control, instant accessibility, and ease of operation are some of the factors which are responsible for the fact that Kardex has four hundred thousand users throughout the United States and Canada.

Kardex greatly simplifies the keeping of purchase and stock records. A glance at the visible portion of the card shows the laid down cost of the article, amount of stock on hand and its location in the stock room. With Kardex you look *at* the record not *for* it.

The Remington accounting machine booth was very interesting from a standpoint of cost accounting, particularly the machine specially designed for cost work. Its capacity for accumulating numerous

vertical totals and at the same time computing horizontally, automatically, quantities and values, or time and amounts, brings it to the forefront of mechanical equipment for cost accounting.

A centre of interest during exhibitors' hour was the exhibit of Elliott, Fisher, Limited, 146 King Street West, Toronto, Ont. Among the recent improvements made by Elliott-Fisher is the automatic electric accounting and writing machine. This new automatic electric is considered the crowning achievement of Elliott-Fisher's thirty-five years of experience in the manufacture of accounting-writing machines. The exhibit also contained a machine for continuous forms and transverse roll carbon. These machines obviate the necessity of handling carbon paper and effect a very considerable saving.

There were seven different models of Addressographs exhibited at the Convention. The Addressograph claims to be more than a machine. It offers a complete system for maintaining accurate mailing lists or permanent office records and doing mechanically all routine addressing or imprinting of repeated data. It can be used for circulars, invoices, time cards, envelopes, labels, etc.

The World—Industrially Unbalanced

DR. WALTER F. RITTMAN

President, The Society of Industrial Engineers
Head of Commercial Engineering Department, Carnegie Institute of Technology

IN any healthy industrial unit, Production, Distribution, and Finance should be so balanced that the capacity of any one takes care of the other two. A nation represents a collection of such units, and the world is a collection of nations. What is true of the individual company holds true for the nation or for the world. The company that buys more than it sells must have resources to offset the difference, or within a period of time bankruptcy will be as inevitable, as to the individual who spends more than he earns. During the past twelve years the formerly balanced relationship of Production, Distribution and Finance between the nations of the world, has become so out of adjustment that we find peoples with tremendous needs without finances to buy, and other peoples with tremendous capacity for production but with very limited markets in which to sell their products.

Prior to the Great War, some countries specialized in the manufacture of goods, and shipped their surplus to other countries which specialized in the production of raw materials and agricultural products. Countries like England, Germany, Belgium and the United States exported manufactured goods to countries like Russia, Brazil, Argentina, Chile and China, in exchange for the raw materials and agricultural products of these countries. These latter countries did not engage in manufacture to any marked degree because their needs were very well taken care of. With the event of the War the entire plant capacities of the industrial countries were turned over to the manufacture of military supplies and munitions, with no surplus left for the countries previously dependent upon them. The only course left for the strictly agricultural and raw material countries was to turn about, build their own factories and manufacture their own goods. China installed its own textile mills, India constructed blast furnaces, Argentina, Brazil and Chile installed machinery to meet their immediate needs for the necessities of life formerly supplied by other nations.

A direct parallel in the development of the American industrial plant can be found during the War of 1812, when America was temporarily shut off from the outside world, and installed equipment to make the goods which it had been used to purchase from the older countries. Having once established the precedent that they could manufacture, a part, at least, of their own goods, it is but natural that the development should continue. The Argentina point of view became: "Why ship our hides thousands of miles away to be made into shoes and then shipped the same distance back again to be sold to us. We will tan our own leather and make our own shoes." Not only did these raw material countries start to manufacture more than formerly but at the same time all the countries involved in the Great War were forced to build up their own industrial machines in order to take care of their own tremendous needs. America was in exactly the same position as the other nations, in that our own production capacity was tremendously increased. Then with the War over, the world found itself with a very greatly enlarged production capacity, far greater than would normally have developed; and specific countries found themselves with plenty of production capacity but without sufficient Markets or Finances. Production capacity is not the problem of Europe and America to-day. On the other hand, mal-adjustment of Distribution (Markets) and Finance are to-day very real problems of both Europe and America.

Another readjustment that must take place is due to the fact that many nations, which prior to the War were creditor nations, now find themselves

in the reverse position of owing to other nations huge sums of money. Formerly, England, Belgium and France owned considerable of American railroads, utilities and industrial enterprises; the interest and dividend payments of which investments were made by America in the form of products, both raw and manufactured, shipped to Europe. Now the situation is reversed and these same nations must pay us what they owe us in the only possible way; by the shipment of goods. Many do not seem to realize that this receipt of goods will mean added competition to our own industries. The situation becomes the same for an individual as a nation. Mr. A. has only fifty dollars and he owes Mr. B. one hundred dollars. It is obvious that the only way that A. can square his debt with B. is by services or the product of his labor. The situation is exactly the same in the industrial field.

To get the working of the same principles on an international scale one has only to look at the current problem of the success and working of the Dawes plan. By the terms of the Dawes plan, Germany is to pay the Allies about $600,000,000 a year at the end of the partial moratorium in 1930. Also, America is arranging for the payment of debts owed her by the countries of the world. But a portion of these payments can be made in gold, for the simple reason that Germany and the Allies do not have it; America is the custodian of the major gold reserves of the world. The only other recourse for all these payments are goods and services. Germany has met the first relatively small payments, largely from the loan of $200,000,000 that the Allies made to her. As soon as Germany starts to pay the big sums in terms of goods which will flow into other countries, all of us will realize the situation.

Up to the present we have said "Germany you must pay but we do not want your goods." Can we continue to take this stand, and at the same time expect Germany to pay? Can America expect England, France, Belgium, Italy and other countries to pay us their debts without buying more of their goods than we sell them of ours. **Can we continue indefinitely to have a "favorable" trade balance with these countries, and at the same time collect our debts?**

The question of Markets for manufactured goods is so linked up with finances that often they become one problem. People without money cannot buy and people with plants cannot sell indefinitely to people without money. To what extent then will America accept goods in payment of debts, realizing that in so doing her own factories will produce that much less. Will the Allies accept $600,000,000 of goods a year if it means the laying off of their own men? Judging from a few instances that have come to the foreground, the answer might easily be in the negative. In America whenever serious foreign competition hits us we appeal to Congress to raise the tariff rate in order to protect home industry. When England recently contracted for German made ships, there arose in England a great protest. Recently Germany perfected a process of manufacturing synthetic wood alcohol (methanol), which they can ship to this country, paying freight and tariff, and still sell for half of our American production costs. It endangers an American industry and the men concerned immediately started a movement to greatly increase the tariff in order to forestall competition. **You must pay** is the cry on the one hand, and **we don't want your goods** on the other. As to the possibilities of getting enlarged markets in South America and the Orient, we must remember that they are already manufacturing more than they ever did. New markets may be developed in time but it is a slow process and the matter of our accepting their goods during the period of readjusting constitutes the real problem that has to be dealt with. The Hottentot may be taught the need for clothes but his education takes time.

What does all this mean for America and the American workman. This includes all of us because we are all workmen regardless of the title attached to our work. Stripped of all pleasant and soothing verbiage, it means that the inefficient will fall by the wayside. The inefficient industrial institution will fail because of inability to compete; the inefficient worker will either be out of a job or have to be satisfied with a lower grade of work. As yet the real determination as to who is efficient and who is inefficient has not come into effect. The world is on a moratorium basis so far as the payment of debts and obligations is concerned. During practically the entire period since the War, other nations have bought more from us than they have sold us. This cannot continue, and will not continue. This means that in the future other nations will sell us more than they buy from us. During the period from 1914 to 1920 a big shortage of buildings developed in the United States. Many observers are of the opinion that much of the prosperity we have enjoyed during the past few years is the result of filling up this gap in our building shortage. Other observers say our prosperity of the past few years is the result of the building and the automobile businesses. Whatever the reasons, each day brings us closer to the day when the domestic shortages created during 1914 to 1920 will be filled in, and closer to the day when the competitive era will be upon us. The markets will be for those of us who can produce and sell the best articles at the lowest cost. There will be no room for the inefficient company or the inefficient worker. Let us not be among those eliminated!

(By courtesy of the Society of Industrial Engineers.)